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An Address.[1]

THE COST OF MEDICAL CARE.

By CHARLES BYRNE,

Retiring President of the Victorian Branch of the British Medical Association.

THE subject of my address is the cost of medical care. I propose to discuss what the costs are and how they have risen, to analyse the reasons for the rise and finally to indicate how the problems presented by this rise should be met. In Australia with so many unknown factors such as medical incomes, chemists' incomes, and fees for private and intermediate hospitals, medical costs would be well-nigh impossible to assess. In the United Kingdom, however, where the great bulk of medical services are covered by the National Medical Service, figures are available and supply interesting and instructive reading.

In the United Kingdom, in the forty years between 1908 and 1948, medical costs increased 70 times. This period, for want of a better (or worse) name, could be designated that between the Lloyd George era and the Bevan era, and dates roughly from the time when the medical fly was first being enticed into the Government parlour until it was finally digested. The Beveridge Report of 1942 estimated that the cost of a comprehensive Health Service (including dental care) for the United Kingdom would be £170,000,000 *per annum*. This figure was accepted in the estimate for the National Health Service Bill in 1946. Two years later Mr. Aneurin Bevan increased the estimate to £230,000,000. In actual fact the first years of the National Health Service cost £275,904,542, of which amount the Government paid £208,338,142, the difference representing expenses incurred by local authorities and money coming from the Health Service itself from such sources as private ward accommodation, which are termed appropriations in aid. In 1949, having first opened the flood gates, Mr. Bevan—like a modern Canute—ordered the flood to stop. He issued instructions to the hospitals to cut their costs by £9,500,000, but at the same time to maintain their same degree of service. He did not indicate how these rather contradictory instructions were to be reconciled. The answer was rather depressing in the form of a National Medical Service bill for £449,171,732 for the next year, which, less appropriations in aid, left the Government £358,509,550 to find, and of this gross amount the hospital bill was £250,755,600. For simplicity I will confine myself to the lower figure. This figure actually dropped by £5,000,000 the next year (although the total amount was £15,000,000 higher). The First Lord of the Treasury then stepped in and fixed a ceiling of £400,000,000 *per annum*, and the following year the figure was £398,083,000. This total does not count the amounts represented by appropriations in aid (£71,000,000), fees from private medical practice (particularly specialist practice) and the vast amount spent on patent medicine. It does not include the amount spent by the nation on the medical services to the armed forces, the school medical and dental services,

[1] Delivered at the annual meeting of the Victorian Branch of the British Medical Association on December 3, 1952.

the Pensioner Medical Service and that half of the ambulance service which is borne by the local authorities. It does not include the capital cost of the promised 2000 health centres, which would be £374,000,000 at 1948 prices (excluding site values and costs of equipment), nor does it include the vast new hospital building programme. Undaunted, the Socialist Medical Association urges that £125,000,000 be spent on new hospitals and £300,000,000 to £400,000,000 on rebuilding old ones, an annual cost of £50,000,000 being involved. On top of this we have the Danckwerts Award, which found that the doctors had been underpaid by £40,000,000 during the four years from 1948 to 1952. This money will have to be found and the annual budget also increased by the extra £10,000,000 for medical fees. This is going on in a country which is struggling to avert national bankruptcy, and in which the weekly ration of meat per person is two frozen chops or their equivalent. By far the greatest item is the cost of hospitals, which in the years of nationalization was £145,000,000, £250,000,000, £269,000,000 and £285,000,000 respectively, constituting 52%, 55%, 58% and 60% of the total cost. From this it will be seen that not only is the total cost of hospitals increasing, but also the relative cost, and both at a steep rate. Lest there be any temptation to attribute all this to the National Medical Service, I would remind you that the cost per bed per week at the Royal Melbourne Hospital was £3. 17s. 5d. in 1925 and £25. 9s. 3d. in 1952, representing a rise of roughly 537%. In comparison, during the same period the basic wage rose from £4. 7s. 6d. to £11. 8s., a rise of 145%. Costs had been steeply on the rise prior to the Bevan era, and the great and inexcusable mistake of the planners was not to recognize this fact.

The National Health Service must be paid for, and the source of most of the necessary money is taxation. Further increases in taxation may well deprive the people of the money necessary for adequate shelter, food and clothing. This could result in more ill-health necessitating more medical care, and a vicious circle being set up. The anomalous position may well arise that the medical service can be maintained only at the expense of the people's health. The Government has signed a blank cheque, and the whole nation has gone on a medical spree. It likes the medical high life and resents any curtailment—witness the furor over the small charge for dental care and optical aids, and the suggested small pharmaceutical charge.

To curtail expense now would need great political courage, and in the nearly even state of the political parties the exercise of such courage could mean political suicide, so where the experiment will end is anyone's guess. Of course, much has been accomplished—it would be impossible to spend £400,000,000 *per annum* and accomplish nothing—but it is at least open to question whether John Bull has got his money's worth.

A century ago medicine was a fairly simple matter. Ladies of fashion suffered from the vapours, men of fashion from the gout and the poor from scrofula. Sawbones's methods were purely empirical, his fees were small and worth less. Quite suddenly medicine became a science. Since the epoch-making discovery of bacteria, more progress has been made than all other progress since the dawn of history. Each decade has brought more advances, and the acceleration of advancement is constantly increasing. The development of modern surgery, anæsthesia, X rays, bacteriology, endocrinology, biophysics, biochemistry, obstetrics and therapeutics has all been crowded into this short period. The greatest concentration of new remedies has taken place in the past fifteen years—the "sulpha" drugs, the antibiotics, the developments in nuclear physics and their application to medicine, developments in anæsthesia, thoracic surgery, anticoagulants, transfusion, cortisone and ACTH. The dynamism of medicine is such that no one can foresee what the position may be in another decade. In direct proportion to the development of medicine has been the increase in costs, and there is every reason to assume that the constantly expanding fields of diagnosis and treatment will further accelerate this rise.

A direct result of all this expansion has been the growth of hospitals. In pre-Pasteur days there were only the Poor Law hospitals, which were quite fatal places to go to on account of cross-infection. Modern medicine and the modern hospital have become to a great extent symbiotic, and each has matched the other in expansion, complexity and costs. In England and Wales in 1900 there were 19,000 hospital beds, in 1946 there were 92,000—an increase of 380%. As a typical example of the expansion of the modern hospital, take Addenbrooke's Hospital, Cambridge, England, from which figures are available. In 1918 there were 516 X-ray examinations in the hospital; in 1950, with approximately twice as many beds, there were 19,000—an increase of 3582%. In 1927 there were 1500 pathological examinations, in 1950, 39,260—an increase of 2517%. In 1937 the waiting list was 220, in 1949 it was 2900—an increase of 1308%. The increase in the size and scope of work has seen a corresponding increase in personnel. In 1928 the proportion of staff (of all types) to patients was 104 to 190, or 54%; in 1950 the proportion was 510 to 360, or 142%—that is, an increase of three times the staff in proportion to the patient, 1·4 people being employed for every bed occupied. At the Royal Melbourne Hospital in 1925 the figures, computed on a slightly different basis but valuable as showing the same tendency, were (including all hospital employees from medical superintendent to gardeners) 411 to 397, or 103%; in 1952 the proportion was 1318 to 528, or 250%—that is, two and a half people are employed for every bed occupied. Some caution must be exercised in assessing the significance of these figures, and particularly in comparing the two hospitals; for example, the out-patients department at the Royal Melbourne Hospital is catered for by the same personnel, and there does not appear to be any out-patients department at Addenbrooke's Hospital. They are instructive, however, as indicating the vast expansion in personnel necessary to give the patient modern hospital care.

Formerly, the doctors were all general practitioners and had very little assistance of any sort. Now they have the assistance of the radiographer, pharmacist, dispenser, almoner, dietitian of three types (the nutritionist, the special diet officer and the therapeutic dietitian), physiotherapist, chiropodist, speech therapist, audiometrist, electrocardiographer and medical photographer. Many of these have formed their own groups with courses of study extending over a period of years and subsequent claims for higher status and higher pay. We even have the Association of Theatre Technicians, whose members have the duty of wheeling patients into the operation theatre and putting them on the table, and membership of which is subject to a course of training including an examination in anatomy and physiology. As far as I know this particular development has not extended to this country. In fifty years, at Addenbrooke's Hospital, the number of beds has doubled, the labour involved has increased seven times, the medical staff 12 times, the nursing staff 15 times, and the administrative staff and ancillary services have grown from almost nothing to a large size. Most of this has been a necessary and inescapable effect of the modern development of medicine. A seeming paradox has been that despite the extraordinary advances, despite the onslaught of the new drugs on the acute diseases, despite improved social conditions, sanitation, housing and wages, ante-natal clinics and school medical services; doctors' surgeries have never been so crowded, nor the waiting lists at hospitals so long. In 1949 the Federal Council of the British Medical Association in Australia found that the waiting list of the public hospitals in the six capital cities in Australia was 19,853, at one particular date. Judged by the number of hospitals necessary, the drive against disease has resulted in a greater incidence of ill health. How is this to be explained? Many factors are involved. Coincident with the medical revolution have been the industrial revolution and the transport revolution. The industrial revolution brought new factors along with it. Until comparatively recently factories were ill-ventilated, ill-lit, crowded and lacking in sanitary facilities. Diseases peculiar to industry became common. In the United States the incidence of occupational disease in an industrial population is approximately of the same order as the incidence of non-occupational disease in the same type of population. In Victoria in 1942 about

48% of all persons, male and female, between the ages of sixteen and sixty years were employed in industry. Diseases due to exposure to lead, silica dust, asbestos dust, cement dust, manganese, toxic gases such as carbon monoxide, carbon dioxide, sulphuretted hydrogen and oxide of nitrogen became much more in evidence. New technical processes have brought fresh problems—for example, the blood dyscrasias associated with solvents such as benzene and toluene. The machine age has also introduced a new field for medical care in the industrial accident.

In the horse and buggy days injuries due to transport were uncommon. Most people travelled little, and methods of transport were slow and safe. The advent of the motor-car and the motor-cycle has, however, caused a vast expansion in the number of transport accidents. Here again the increase has been in geometrical rather than in arithmetical progression. In 1926 there were 901 people killed and 11,893 injured in road accidents in Australia. In 1952, with a relatively small increase in the population, the figures were 2040 and 38,376 (an increase of 113% and 222% respectively). In the six years of the 1939-1945 war we lost 33,853 killed and 180,864 injured—a total war casualty list of 214,717. In the past six years the respective figures for road accidents have been 9727 and 179,049—a total of 188,776, not far below the war casualty list. When a former president of this Branch, Dr. Robert Southby, in his address two years ago drew attention to these road accidents, he quoted the figures of a six-year period commencing three years before the period I quoted. The figures were 6399 killed, 110,880 injured. This shows an increase between the two periods—that is, between the six-year period commencing 1944 and the six-year period commencing 1947—of 52% killed, 60% injured, and a total casualty increase of 60%. At this rate of increase, it will not be long before road casualties will exceed the war casualties of a similar period. On November 10, 1952, a date taken at random, there were 1470 beds occupied in the four adult public hospitals in Melbourne; of this number of patients 123, or nearly 9%, were injured in road accidents. This figure does not take into account the number of such patients in private hospitals and the vast number with injuries not needing admission to hospital and treated in the casualty department, the out-patients department and doctors' surgeries. These figures prove one thing, and that is that no government in Australia has yet done anything effective in the matter of road accidents.

Pari passu with the conquest of many acute diseases has been the rise in incidence of what are known as the stress diseases—goitre, peptic ulceration and arterial disease. It is impossible to estimate how much the one factor has been offset by the other, but there is sufficient evidence to temper the enthusiasm of the optimist. In the old days it was a case of the survival of the fittest. Nowadays, thanks to modern medicine, the not so fit also survive, but of course have a greater incidence of sickness and need of medical care, and further, they transmit their weaknesses to the next generation. A concrete example is the young diabetic who, thirty years ago, was doomed to an early death, but now survives to lead a reasonably happy and useful life, but also needs constant medical supervision and often transmits his disability to his progeny. More commonly the condition transmitted is not anything more definite than just a family lack of toughness.

Finally, the increasing average age of the community has had unforeseen results. This increase has been brought about by birth control and by the very advances which have had such spectacular results in the treatment of acute conditions. These latter have resulted in more children and young people eventually attaining old age and in more old people attaining older age. Paradoxically the very advances which have had these effects have thereby increased the incidence in the unavoidable illnesses of old age. Apart from the foregoing, we have improved anæsthesia, deep X-ray therapy and radium, improved methods of treating thromboses, cerebral and coronary, improved methods of treating fractured hips and the other various conditions, any one of which was formerly the prelude to an early death. There is no cure for old age. Its illnesses are largely of a degenerative nature, and treatment is of a palliative nature. It may be said that under modern conditions old age is more comfortable, not so vulnerable to acute infection and lasts longer. Each oldster by living longer survives more illnesses and thereby needs more medical care.

In the United Kingdom in 1901 the percentage of men aged over sixty-four years and women over fifty-nine years was 6·2. In 1951 it was 14·5%, and it has been calculated that in 1971 it will be 20·8%. This very factor has, it is estimated, caused an increase in degenerative diseases in ten years of 28%, and an estimated increase in the next ten years of a further 47%. In the United States of America and in the United Kingdom the proportion of domiciliary attendance on people aged over sixty-five years and on young people is 6:2·7. An investigation in the United Kingdom showed that of the beds for the chronically ill 75% were occupied by people aged over sixty-five years. From these facts it will be seen that what Ffrangçon Roberts has termed "medicated survival" necessitates more medical care and more hospital beds. His book has supplied me with much valuable information, and in it he sums up as follows: "The further medicine advances the greater the amount of work it makes for itself."

It will be seen that the problem is not so simple as the arm-chair planners thought. Their idea was that the solution was more and more doctors and more and more medicine, the type of over-simplification which usually results from the dilettantish approach. It will be seen, however, that the rise in the cost of medical care was not in the main due to nationalization. It was inevitable, inescapable and astronomical, and there is every indication that the cost will continue to rise. It is surely time to take stock of the situation. One difficulty is that of assessing the problem in a manner entirely divorced from emotion. Suffering and death promote sympathy, and any criticism of health measures is interpreted as sectional in inspiration and lacking in humanity. The demagogue says, let the Government supply medical care free to everyone; but the State does not get the money from Mars, it gets it from the people. It has been said that the main difference between a capitalist State and a socialist State is that in the former half the people are poor and in the latter they all are. In like manner, excessive State interference in the practice of medicine may well result in the last condition being worse than the first.

Here, then, is the problem—an increasing proportion of the population need an increasing amount of increasingly costly medical care. I have said sufficient to indicate that the dynamism of medicine is such that there is no discernible ceiling to the cost of necessary medical care. A great deal can be done to minimize waste, but the only real solution is to have fewer people ill. This involves prevention, on the principle that "a fence at the top of the cliff is better than a hospital at the bottom". If in the future less and less people need medical care, a balance may finally be arrived at when the total cost may be within reasonable limits.

As was stated above, a major factor in the rise of the cost of medical care has been road accidents. As I have indicated, the road is rapidly overtaking war as a factor in human suffering and casualties. As war is only a recurrent phenomenon, whilst the road is always with us, the toll of the road will soon exceed the toll of war. Many causes have been assigned—bad road manners, drinking, inattentive drivers and inattentive pedestrians, wet and bad roads, glaring headlights. But these are only contributing factors; the majority of accidents happen in daylight, on fine days and good roads. The basic cause is that the speed of the modern vehicle has far outstripped the capacity of the driver to control it. Every year sees speedier cars and more casualties. The National Safety Council has made valiant efforts to educate the people in the matter, but few listen. The police have made valiant efforts to enforce regulations, but can cover only a small portion of the road at one time. The plain fact is that the average motorist will not listen to exhortations and will obey regulations only when it suits him or when a policeman is in sight. The war on the road must be fought with

some of the grimness and ruthlessness which is applied to war on nations. The only possible solution is to limit speed—automatically. This can be done by the compulsory installation of governors on all but police cars and motorcycles, fire cars and ambulances, with a drastically reduced upper limit. Any car found without a properly functioning governor should be deregistered and its driver delicensed. Annual reregistration of a car should be subject to the production of a certificate of its steering and braking efficiency. Such measures would be unpopular on all sides. John Citizen is like a spoilt child and resents any curtailment of his privileges—and vested interests will talk about putting back the clock. Governments do not court unpopularity, and my prediction is that no government will have the courage to face this problem squarely, and that the road will continue to exact a higher and higher price in human suffering for the benefits it confers.

In marked contrast to the lamentable failure to cope with the road problem has been the spectacular successes in the field of preventive medicine. Here governments must merit a great measure of praise, as so much of the work has been done by, or via, the public health departments. Smallpox has ceased to be a problem to western nations and is being tackled in the east. The same applies to typhoid and yellow fever, whilst the control of malaria, tetanus, cholera and plague is in sight. Effective quarantine regulations effectively carried out at seaports and airports have limited the spread of disease from one country to another.

In regard to particular diseases, a glance at the position in Victoria is instructive. In 1925 there were 157 cases of diphtheria per 100,000 of the population; in 1951 the figure had dropped to 15, a decrease of 90%. Typhoid figures for the same years were 10·8 and 0·685 respectively, a decrease of 93%; tuberculosis figures 64 and 39, a decrease of 39%; scarlet fever figures 79 and 48, a decrease of 39%. In the same years early measures have contributed to a lessening in the incidence of such diseases as pertussis, dysentery, hydatid disease and brucellosis. There has been the institution of the maternal, infant and pre-school and school medical services, and health education activities. There is cooperation between the Department of Public Health and the Walter and Eliza Hall Institute in research on virus diseases, and with the Fairfield Epidemiological Unit into the investigation of brucellosis, "Q" fever and leptospirosis. An Industrial Hygiene Section has been established aiming at the prevention of diseases associated with occupations involving exposure to lead, dusts and toxic solvents. Increasing emphasis on prevention in the medical curriculum and more grants for research into the nature of disease have been steps forward. Much has been accomplished, but much remains to be done. The time may then come when, to quote Sir Robert McCarrison, a doctor will be engaged in "piloting the ship safely to port, instead of spending the greater part of his time in salvaging wrecks".

However successful preventive measures may be, we are stuck with the fact that the most fatal thing a man can do is to be born, because that ensures that he will die. There will therefore always be a great demand for medical care. The methods of wasting money in the pursuit of health seem like the charms of Cleopatra to be of infinite variety. People are still convinced that it can be purchased over the counter corked up in a medicine bottle. Two-thirds of all medicines used are not on doctors' prescriptions. The amount of money spent on patent medicine, according to an investigating body in America, is equal to one-third of that spent on medical care, almost half as much as that spent for hospital care, and much more than that spent on dentists, private nursing or public health.

Vast sums are spent on quackery. Unqualified healers of all sorts and varieties abound and flourish on the ignorance, credulity and fears of the people. As in the case of motor accidents, no government has yet had the courage to control this particular method of wasting money in the quest for health.

Efforts to spread the cost of medical care have usually taken the form of national health services. Here a note of caution should be sounded. We have seen in the United Kingdom a perfect example of a project in which the magnificence—one might rather say the magniloquence—of the planning far outstrips any capacity to implement it. If we set aside political ideology and plain vote seeking, the aim of such a service should be to see that people will not be financially embarrassed by necessary medical care. Such embarrassment could be the result of catastrophic illnesses, but not of the various minor complaints which lead the patient occasionally to the doctor's surgery. It seems logical, therefore, that the money available should go mainly in the payment for treatment of the former. In this respect, 700 unselected accounts from a cross-section of practices were analysed. The average fee was slightly over three guineas per account, and 80% of the fees were under five pounds. This survey was made two years ago, and fees have risen since then, but not sufficiently to alter the position materially. If people can claim free medical care for any condition, however trivial, the cost of such unnecessary care must load the all-over figure for all medical care. The only solution for this is for the patient to have a financial interest in the transaction by paying part of the cost. The present government has been very wise in adopting this principle. Its approach to the whole matter has been to put first things first; thus free medicine was limited to costly life-saving and disease-preventing drugs, and no assistance was given for placebos. The most needy members of the community, the old age and invalid pensioners, were then provided with a free general practitioner service. The next step toward providing assistance towards the cost of medical care has been guided by the sound insurance principles which have been so prominent by their absence in the British scheme. The liability underwritten is not unlimited. Members of medical benefit funds will realize that it will be to their own benefit to limit abuse, as this will lead to lower premiums or an increased benefit or both. This happy state has been made possible by the universal adoption of the fee-for-service method of payment of doctors. The same principle of the split fee and the mutual benefit will stop any tendency of people to occupy hospital beds for unduly long as happens in the United Kingdom.

We can therefore look forward to the government scheme with optimism that it will achieve its purpose without crippling costs. If, however, costs rise unduly, a simple way of curtailing them without inflicting hardship would be, as seen by the figures quoted above, the adoption of the principle of making the patient pay the first five pounds *per annum*.

I have not solved the problem of the cost of medical care. I have, however, indicated that there is quite a problem and have attempted to analyse it. I have stressed that although costs must rise with progress, the grade can be made less steep, and ultimately something more resembling a plateau may be reached.

Finally, one must retain his perspective. Even in the United Kingdom, where £400,000,000 *per annum* are spent on the National Health Service, there is spent—and this, of course, voluntarily—*per annum* on tobacco £778,000,000, on beer £488,000,000, and on gambling £650,000,000.

VITAMIN B_{12}: A SHORT SUMMARY.

By SYDNEY D. RUBBO,
Professor of Bacteriology, University of Melbourne.

IN view of the undoubted importance of vitamin B_{12} it was thought worthwhile to present a brief summary of knowledge on this new hæmatopoietic factor. (For further information the reader is referred to reviews by Lester Smith (1951) and Ungley (1951).)

Of all substances known to have physiological activity in man, vitamin B_{12} is equalled only by the toxin of *Clostridium botulinum*, each being capable of exerting a profound effect, one hæmatopoietic, the other lethal, in a

dose of 10 microgrammes (1/100th part of a milligramme). Vitamin B_{12} is equivalent to Castle's extrinsic factor, in that when administered orally with a source of intrinsic factor it stimulates a hæmatopoietic response in the pernicious anæmia subject.

Discovery.

Vitamin B_{12} was first isolated in a crystalline form by American workers Rickes, Brink, Koniuszy, Wood and Folkers, who published their results on April 16, 1948, and named the substance vitamin B_{12}. English workers, Lester Smith and Parker, a few months later isolated the same substance from liver and accepted the American terminology. On August 6, 1948, Rickes *et alii* showed that vitamin B_{12} contained cobalt and was synthesized by microorganisms. The chemical name proposed for vitamin B_{12} is cobalamin.

Chemistry.

The molecular weight of vitamin B_{12} is approximately 1300, each molecule containing one atom of cobalt and one atom of phosphorus.

Four chemical types, all physiologically active, are now recognized: vitamin B_{12a} containing a cyano group (cyanocobalamin); vitamin B_{12b} containing a hydroxyl group (hydroxycobalamin); vitamin B_{12c}, in which the cyano group of B_{12a} is replaced by nitrite; vitamin B_{12d}, the product of the removal of the nitrite group of B_{12c}.

Further vitamin B_{12} compounds will probably be isolated or synthesized. In Nature, vitamin B_{12} occurs in a bound form, linked to protein, but can be liberated by boiling or proteolysis.

Stability.

The vitamin B_{12} withstands boiling to 100° C. and autoclaving within the pH range of 4·0 to 7·0, but it is destroyed by heating above or below pH values of 2·0 to 9·0.

It is not affected by phenols, but is destroyed by heavy metals, oxidizing agents and reducing agents (for example, vitamin B_{12b} is inactivated by ascorbic acid).

Origin and Distribution.

The primary source in Nature is the metabolic activity of microorganisms, particularly species belonging to the genera streptomyces, actinomyces and bacillus. However, it is not produced by yeasts and fungi.

The flora of the large bowel in normal human and pernicious anæmia subjects synthesizes large amounts of vitamin B_{12}, which is unavailable to the host and is excreted in the bound form, approximately five microgrammes daily.

Vitamin B_{12} requirements of man are obtained from foods (see below), whereas ruminants obtain vitamin B_{12} from synthesis by rumen bacteria, and poultry, rabbits and pigs by coprophagy and A.P.F. (animal protein factor).

Food sources of Vitamin B_{12} (approximate values only) are as follows (the figures are given per 100 grammes of food): liver and kidney, 42 to 47 microgrammes; cooked meats, three to eight microgrammes; veal and lamb, two to eight microgrammes; cheese and egg yolk, 1·4 microgrammes; pork, 0·1 to 5·0 microgrammes; milk, traces.

Commercial sources are from fermentation by *Streptomyces griseus* or from liver extraction.

Microbiological Activity.

Vitamin B_{12} is an essential growth factor for the following organisms: *Lactobacillus lactis* Dorner, *Lactobacillus leichmannii*, mutant strain of *Bacterium coli* and *Euglena gracilis* (alga). Any one of these organisms may be used for assay of B_{12} activity, provided the vitamin is not bound to protein and the bacterial assay is carried out under aerobic conditions. Bound forms of vitamin B_{12} are microbiologically inactive, and under anaerobic conditions bacteria will grow without added vitamin B_{12}.

Physiological Activity.

Intramuscular injection of 10 microgrammes of vitamin B_{12} in the pernicious anæmia subject brings about the following changes: (*a*) completely normoblastic marrow in seventy-two hours; (*b*) reticulocytosis, the maximum peak on the fifth or sixth day; (*c*) an increase of red blood cells in fifteen days; (*d*) a return to normal of leucocyte and platelet counts, if low. In addition, there are a sense of well-being and return of appetite prior to any significant changes in the blood picture.

The best index of response is the increase of red blood cells, the extent depending on the initial anæmia and the dose of vitamin B_{12} (Ungley, 1949).

A maintenance dose of 10 to 20 microgrammes given intramuscularly every two weeks, or 100 microgrammes every month is usually sufficient in cases of pernicious anæmia. For patients showing subacute combined degeneration of the cord a higher dosage is recommended—namely,

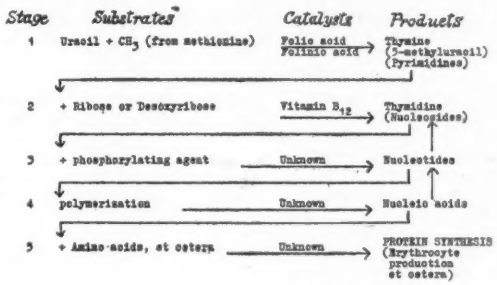

FIGURE I.
Possible mechanisms in the pathogenesis of megaloblastic anæmias: chemical reactions.

40 microgrammes per week until the condition is improved, and a maintenance dose of 40 microgrammes every two weeks. There are no toxic manifestations, so overdosage is no problem.

Oral Administration Alone.

Single doses by mouth up to 400 microgrammes are ineffective, and a dose of 1000 microgrammes has a variable effect, but less than that expected from five microgrammes given by injection. A dose of 3000 microgrammes may result in a good response. There is no evidence that the intestinal bacteria inhabiting the large bowel compete with the host for vitamin B_{12} in the pernicious anæmia subject, although bacteria and helminths may absorb vitamin B_{12} far beyond their requirements. However, tapeworms infecting the small bowel may cause a vitamin B_{12} deficiency and associated anæmia.

Oral Administration with Intrinsic Factor (Gastric Juice).

A hæmatopoietic response follows the combined oral administration of vitamin B_{12} with intrinsic factor (gastric juice) in a majority of cases of pernicious anæmia; hence vitamin B_{12} may be regarded as an extrinsic factor. However, the response is variable and less than that obtained by parenteral injection of the vitamin. A non-dialysable substance, "apoerythrein", has been recovered from normal gastric juice, which combines with vitamin B_{12}, but it is not yet known whether this is identical with intrinsic factor.

Absorption and Excretion.

Vitamin B_{12} is effectively absorbed from the alimentary tract only in the presence of intrinsic factor. If bound (as in food) it is broken down by gastric proteolytic enzymes and then "recombines" with gastric intrinsic factor. This complex is again broken down by intestinal proteolytic enzymes, but is absorbed after "recombination"

with an extragastric factor. The bound vitamin B_{12} travels via the portal vein to the liver and thence to storage tissues. Probable stages are as follows:

Bound vitamin B_{12} (food)
↓ Gastric enzyme
Free vitamin B_{12}
↓ + Gastric intrinsic factor
Bound vitamin B_{12}
↓ Extragastric enzyme
Free vitamin B_{12}
↓ + Extragastric intrinsic ? factor
Bound vitamin B_{12}
↓ Portal vein
Liver

When vitamin B_{12} is injected intramuscularly, 50% to 70% is excreted in the urine in eight hours in a free state, after which it is bound and persists in circulation for a variable period prior to tissue storage. The bound form is not excreted in the urine.

Mode of Action.

The chemical reactions leading up to hæmatopoietic activity are brought about by a number of catalysts, of which folic acid, folinic acid and vitamin B_{12} have been identified as being essential. An absence of any of the substrates or catalysts involved in these reactions will result in impaired blood formation. The possible reactions involve conversion of amino acids to nucleotides, as set down in Figure I and Table I (modified from Vilter, Horrigan, Mueller, Jarrold, Vilter, Hawkins and Seamen, 1950, and from Girdwood, 1952).

TABLE I.
Metabolic Lesions.

Metabolic Defect.	Disease Syndrome.	Ætiology.	Therapy.
Stage 1	Tropical sprue.	Folic acid deficiency.	Folic acid.
	Anæmia of scurvy.	Low folic acid absorption.	Vitamin *C* + folic acid.
	Anæmia of pregnancy.	Unknown.	Folic acid.
	Refractory anæmia.	Unknown.	Folic acid.
Stage 2	Nutritional anæmia.	B_{12} deficiency in food.	Oral vitamin B_{12}.
	Tapeworm infestation.	B_{12} loss-uptake by tapeworm.[1]	Anthelminthics + oral vitamin B_{12}.
	Pernicious anæmia.	Lack of intrinsic factor.	Parenteral vitamin B_{12}.

[1] The tapeworm must be high in the small intestine—species *Diphyllobothrium latum.*

Evidence in support of some of these stages has been obtained from numerous studies in bacterial nutrition and later tested in animal and human experiments. The following examples show how the theory of intermediate nitrogen metabolism has been developed:

1. Thymine can replace folic acid as a growth factor for *Streptococcus fæcalis* R. and *Lactobacillus casei.*

2. Thymine, in the presence of purines, can overcome the inhibitory effect of methyl folic acid, a folic acid antagonist, on the growth of *Lactobacillus casei.* The inference is that folic acid probably catalyses the synthesis of thymine.

3. Thymidine can replace vitamin B_{12} as a growth factor for *Lactobacillus lactis* Dorner when thymine is available. The inference is that vitamin B_{12} probably catalyses the synthesis of thymidine.

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VASCULAR BIRTHMARKS.[1]

By HENRY SHARP,

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THE vascular birthmarks are the second largest group of congenital defects, being outnumbered only by the pigmented nævi or moles. They are found most commonly in the skin and subcutaneous tissues, but occur in any organ or structure except cartilage and the cornea. Concealed lesions may give rise to an unusual symptom complex as a result of hæmorrhage or pressure. The majority of surface nævi are apparent to the naked eye at birth or shortly afterwards, but in some cases development does not take place until adult life. The lesions may grow rapidly, remain static, or increase *pari passu* with the increasing body area. Multiple nævi are not uncommon, and different types may be found in the one individual or even in a single lesion.

In classifying vascular birthmarks it is convenient to divide them into two major groups, capillary and cavernous. The former are flat lesions, composed of well-developed but dilated capillaries with a mature endothelium, and are radio-resistant; the latter are raised or thickened growths, made up of blood spaces and newly formed capillaries lined with immature embryonic endothelium, upon which irradiation has a selective action.

Classification.

The capillary hæmangiomata may be divided into three groups, as follows: (*a*) *Hæmangioma simplex* (*nævus flammeus* or port-wine stain); (*b*) telangectasia: (i) *nævus araneus,* (ii) congenital telangiectasia, (iii) hereditary hæmorrhagic telangiectasia; (*c*) *nævus anæmicus.*

The cavernous hæmangiomata fall into five groups: (*a*) superficial (strawberry mark), (*b*) deep, (*c*) diffuse, (*d*) racemose, (i) arterial, (ii) venous, (*e*) senile.

Two other types of vascular birthmarks are: (i) lymphangiomata and (ii) mixed types of any of those mentioned above.

Not all the foregoing are true "birthmarks", in that they are the result of the disordered development of congenital cell rests. Some are ectatic in origin and arise by swelling or ectasia of preexisting vessels resulting from external stimuli received later in life.

Many mistaken ideas exist in the lay mind relating to the origin of birthmarks, and these false impressions should be combated at every opportunity, as they often give rise to feelings of guilt and anguish in the minds of parents, who may attribute the child's blemish to some trivial act during the period of conception or gestation. There is no scientific evidence that ante-natal experiences play any part in the production of the lesions.

In the management of vascular nævi considerable difference of opinion exists on the question of active treatment. Many observers maintain that the lesions of the cavernous group disappear spontaneously in five or six

[1] Read at a meeting of the Section of Pædiatrics of the New South Wales Branch of the British Medical Association on July 1, 1952.

years, and in confirmation point out that blemishes of this type are rarely seen in adults.

The position, as I see it, is as follows: port-wine stains (capillary hæmangiomata) rarely disappear, but may fade to some extent with the increase of surface area; spider nævi often disappear spontaneously; cavernous hæmangiomata, both superficial and deep, may regress partially or completely as a result of thrombosis of the vessels concerned. The process is usually initiated by trauma and may proceed to ulceration and infection of the area. Hæmorrhage can occur and has, in rare instances, proved fatal. Healing is always slow, and unpleasant scarring may follow. Therefore, treatment should be undertaken as soon as possible, when early management may prevent the unfortunate results of breakdown.

Capillary Hæmangiomata.

Hæmangioma Simplex.

The first group of capillary hæmangiomata, *hæmangioma simplex* (*nævus flammeus*, port-wine stain, *nævus nuchæ et glabellæ*, *erythema palmaris hereditarum*), on section, exhibits a band of abnormally numerous dilated capillaries in the dermis. The endothelial cells lining the vessel walls are of the flattened adult type.

The lesions are found most commonly on the face and neck, but may extend over large areas of the body surface. They vary in colour from light pink through bright red to purple—the depth of colour depending upon the number of capillaries per square millimetre, the thickness of the lesion, and the layer of blood vessels involved—that is, subpapillary, mid-dermal or subcutaneous.

The nævi tend to be unilateral, and on occasions may correspond with the distribution of a peripheral nerve or be sharply limited by the mid-line to part of one side of the body. These have been called segmental or systematized nævi, and have led to the supposition that the primary developmental fault lies in the central nervous system rather than in the vascular tissue involved. The association of cutaneous angiomata with similar lesions in the brain has been observed by Weber, Sturge and others, and further supports the neurogenic theory of origin.

That this particular distribution of vascular defects should receive a specialized name (Weber-Sturge syndrome) seems to complicate the terminology and classification of the subject, especially as angiomata may be found in any organ or tissue of the body with the exception of the cornea and cartilage. For the same reason the term *erythema palmaris hereditarum*, which is a *nævus simplex* of the hands, should be discarded.

The presence of a pinkish discoloration of the skin in the region of the occiput and glabella in about 30% of new-born infants has given rise to the supposition (Unna) that pressure between the presenting vertex and maternal pelvis may play some part in the ætiology of the lesions. This is further supported by the observation that this type of congenital anomaly is rarely, if ever, seen in babies who presented *in utero* by the breech.

It is interesting to speculate whether, in these sites, a local skin anæmia has not stimulated the nerves of the area to bring about a compensatory hypertrophy of vascular tissue.

Treatment of the "port-wine stain" nævus presents many difficulties, and here particularly is the old adage "*primum non nocere*" of the greatest importance, for in most cases the lesions are best left alone, and in women they are best camouflaged with a suitable cosmetic preparation. Those nævi of a faint pink colour, especially when situated at the occiput, or the glabella and on the eyelids, will fade and frequently vanish within three to five years. The darker lesions may lighten in colour as the skin expands with body growth, but never completely disappear.

Before any treatment of a port-wine stain is undertaken it should be realized that the skin comprising the lesion is normal except in its excessive blood supply; beware of replacing this normal skin with scar tissue.

Attempts to destroy the blemishes by cautery, diathermy and carbon dioxide snow usually result in scarring and mottling of the area without complete destruction of the underlying redness. Keloid formation frequently follows, and the end result is often worse than the original birthmark.

Irradiation in any form is contraindicated. The endothelial cells lining the walls of the superfluous vessels are of a mature adult type, and to destroy them with thorium X, Grenz rays, X rays or radium will require a quantity of irradiation which will inevitably result in greater destruction of less resistant surrounding tissues. The only exception is in the treatment of those lesions in which a cavernous element is combined with the port-wine stain. In these circumstances it is justifiable to employ sufficient irradiation to overcome the cavernous element (*vide infra*) and so ameliorate the blemish.

FIGURE I.

Superficial cavernous hæmangioma, at first visit.

Blistering doses of ultra-violet light produced by means of the Kromayer lamp have proved successful in the treatment of a few of the more superficial types, but as the method has proved disappointing in the majority of cases it is falling into disuse.

A tattooing process, in which insoluble pigments are injected between the nævus and the epidermis, has been devised by Conway and Dockter. Good results have been reported in those cases in which the nævus is situated deep in the dermis; but in view of the risks associated with tattooing and the irreversible nature of the process, some time must elapse before the method can be considered safe.

Undoubtedly the best results in the treatment of this type of nævus are achieved by the plastic surgeon, either by excision and grafting of the lesion itself or by surgical removal of the results of previous ill-advised and ineffective treatments. However, most plastic surgeons will agree that port-wine stains covering large areas of the face are unsuited to surgical treatment, as here division of the fibrous bands connecting the skin to the underlying muscles may cause the grafted face to appear expressionless and sometimes grotesque.

Telangiectasia.

Telangiectasia consists of small lesions with a central vessel from which radiate a number of dilated capillaries. They may be single or multiple, congenital or acquired. The following types have been listed as nævi.

Nævus Araneus.—The lesions of *nævus araneus* are usually single or limited to several small discrete lesions, three to four millimetres in diameter. They are found on the face and other exposed areas, especially in young girls and women with fair, fine skins. It is doubtful whether the majority are true nævi, as a history of slight trauma, such as a mosquito bite or the squeezing of a pimple, is often obtained, suggesting that their origin has been in response to external irritation. The lesions are readily destroyed, with no noticeable scarring, by the electrolysis needle or fine-pointed galvano-cautery.

Congenital Hereditary Telangiectasia.—Congenital hereditary telangectasia occurs as groups of dilated capillaries chiefly on the face and neck. The lesions are flat and linear and are sometimes observed in association with other types of nævi. There is no tendency to hæmorrhage from the mucous membranes. Treatment is difficult and tedious, and is carried out with the electrolysis needle or single-pole diathermy, working from the periphery of the lesion.

Hereditary Hæmorrhagic Telangiectasia. — Hereditary hæmorrhagic telangiectasia (Rendu-Osler-Weber disease) is a rare familial disease of unknown cause. It affects both sexes equally and is transmitted through either the male or the female line. The lesions make their appearance after puberty as spider nævi, dilated capillaries and venules, and, in some cases, as small angiomata affecting the skin and mucous membranes.

They are particularly liable to recurrent hæmorrhage, especially from the naso-pharynx, but bleeding may occur from nævi in the mucosa of the gastro-intestinal, urogenital or pulmonary systems. The condition is often progressive throughout life, and secondary anæmia from frequent attacks of bleeding is present in severe cases. Death may occasionally occur from uncontrolled internal hæmorrhage. Diagnosis depends on the recognition of the skin lesions and on a history of repeated hæmorrhages, usually epistaxis, affecting not only the patient, but other members of the family. Treatment is largely symptomatic. Accessible lesions should be destroyed by the galvano-cautery. Radiation therapy is of value in selected cases.

Nævus Anæmicus.

Nævus anæmicus is a sharply demarcated white lesion of irregular outline occurring most frequently on the trunk. It rarely exceeds two inches in its longest diameter. The condition is due to a congenital absence of the small vessels in the upper part of the dermis, and must be differentiated from leucoderma, a pigmentary defect of the skin. Owing to the unobtrusiveness of the lesion, no treatment is required.

Cavernous Hæmangiomata.

Cavernous hæmangiomata are thought to arise from embryonic sequestrations of mesodermal tissue. Projections of solid cords of endothelium canalize to form capillaries and blood spaces which communicate with the antecedent vessel. The cells lining the spaces are generally of a primitive type, and as such are sensitive to radioactivity.

The majority of the cavernous hæmangiomata are present at birth, but may not be noticed until several weeks later, when either growth of the lesion itself or caring for the child on discharge from hospital brings the blemish to the notice of the mother. Occasional nævi of this type are not observed until later in life, when the onset of menstruation or the occurrence of pregnancy may stimulate growth.

Raised vascular birthmarks occur more than twice as frequently in the female as in the male. Twenty-five *per centum* of affected persons are said to have more than one lesion, and different types of hæmangiomata may occur in the same individual, suggesting a common ætiological factor for each type of nævus.

The evolution of individual lesions varies. Some remain static and increase only with the body area. Others are slowly progressive over a period of months or years, whilst not a few may grow wildly and rapidly and, in the space of a few weeks, increase in size from a square centimetre or so to cover the side of a face. This rapid growth may be associated with destruction of surrounding tissues, including cartilage and bone, but malignant changes are rare.

The following types of raised cavernous lesions are described.

Superficial Hæmangiomata.

Superficial hæmangiomata or strawberry marks are elevated bright red, finely lobulated, circumscribed lesions which blanch on pressure. According to Lister, growth

FIGURE II.

Superficial cavernous hæmangioma, one year later (total irradiation, 1400*r* in fractional doses of 200*r*).

ceases before eight months and there is a tendency to spontaneous recovery.

On microscopic examination the lesions are seen to be composed of an enormous number of dilated capillaries and blood spaces with proliferating endothelium within a delicate connective tissue stroma.

Deep Cavernous Hæmangiomata.

Deep cavernous hæmangiomata are blue or bluish-black lobulated masses either situated superficially in the skin or buried deep below the surface, where they appear as a poorly demarcated spongy bluish bulge covered by normal epidermis. The swellings may be circumscribed or diffuse. Multiple lesions are not uncommon and can be found in any organ or structure throughout the body, where they may give rise to unusual symptomatology. Whilst the majority of deep cavernous hæmangiomata grow slowly throughout life and rarely if ever undergo spontaneous disappearance, some lesions may increase rapidly, and as the result of trauma, infection and thromboses undergo necrosis and sloughing with the formation of an extremely chronic ulcer having a tendency to frequent hæmorrhage. This picture has occasionally resulted in the needless amputation of a limb as the result of an erroneous diagnosis of neoplasia.

Diffuse Systemic Cavernous Hæmangiomata.

When the nævus involves the whole or major part of a limb it is known as a diffuse systemic cavernous hæmangioma. The affected limb is swollen but decreases in size on elevation. Symptoms of heaviness and aching occur, especially after exercise, and small hæmorrhages into the muscles may cause pain and immobility. Numerous localized ill-defined cavernous tumours are to be observed under the surface. The lesions consist of long distended blood sinuses resembling superficial veins. Multiple arteriovenous connexions may be present and manifest themselves as bruits and thrills.

FIGURE III.

Deep cavernous hæmangioma, at first visit, aged ten months. The tip of the nose was grossly deformed with a deep cavernous hæmangioma, which had slowly grown since birth.

In extensive lesions the prognosis is serious, as widespread thrombosis and ulceration may lead to fatal hæmorrhage or death from sepsis.

Racemose Cavernous Hæmangiomata.

Racemose types of cavernous hæmangiomata may be either arterial or venous. The lesions consist of a mass of partially developed vessels and proliferating capillaries, which establish connexion with the surrounding normal blood vessels.

The arterial types form pulsating tumours which, like an aneurysm, may erode surrounding bone or, bulging into a cavity, rupture to cause fatal hæmorrhage.

The venous lesions are more benign. On palpation they frequently conform to the "bag of worms" description given to a varicocele.

Both types of racemose hæmangiomata are found most commonly on the head and neck, where they appear suddenly and grow rapidly. The lesions may not occur until adult life, and often arise from preexisting port-wine stains. They are frequently associated with other vascular nævi. Wyburn Mason (1943) noted seven instances of *angioma venosum racemosum* of the spinal cord associated with segmental skin nævi.

Senile Angiomata.

Senile angiomata are small, dark-red, raised tumours varying in size from a pin-head to a split pea. They are found chiefly on the trunk and usually appear after the age of forty years. On microscopic examination they are found to consist of a mass of dilated capillaries. The lesions are probably ectatic or degenerative in origin and therefore cannot be considered as true birthmarks.

Treatment.

The treatment of cavernous hæmangiomata has been the subject of much argument as to the most effective way of bringing about the disappearance of the lesions, and further disagreement exists as to the best time to carry out such treatment.

FIGURE IV.

Deep cavernous hæmangioma, twenty months later. No portion of the skin surface received more than a total of 1200*r* of superficial X-ray therapy delivered in divided doses.

It should be understood at the outset that no one method is suited to the treatment of all lesions. Rather must each birthmark be considered on its individual merits, for some lesions will require the use of several of the means at our disposal to achieve a satisfactory cosmetic result.

The tendency to wait and see if the lesion will disappear is condemned, and the necessity of early treatment is stressed. Whilst it is admitted that a proportion of birthmarks do undergo spontaneous regression, these are confined almost entirely to the superficial group of strawberry marks. The deeper lesions usually increase in size and so add to the difficulties of management. Regardless of the fact that the lesion is of the type that as a general rule undergoes spontaneous cure, active treatment should be carried out, not only to hasten recovery, as it will, but to allay the mother's natural anxieties.

The methods used to treat cavernous hæmangiomata will depend upon the type of lesion and the experience and facilities of the operator. The main consideration must be to produce as good a cosmetic result as possible con-

sistent with the destruction of the lesion, and to achieve it with a minimum of pain and general upset to the child.

Cryocauterization or refrigeration with carbon dioxide snow is suited to the treatment of small superficial lesions not exceeding two centimetres in diameter. Moderate to firm pressure is applied with a moulded pencil of dry ice for ten to thirty seconds. A few hours later a bulla forms over the treated area and soon ruptures, to be followed by ulceration and crusting. Healing occurs with mild scarring. Considerable experience is required to obtain satisfactory results, as excessive pressure or application of the snow for too long a period may cause severe necrosis.

The cautery and diathermy have both been used in the treatment of these conditions and are more suitable for the deeper lesions. Unipolar and bipolar diathermy or the cautery point is used to stipple the lesions and cause coagulation of the blood spaces; as a general rule necrosis results with subsequent scarring, and not infrequently keloid formation follows. In the hands of skilled operators the results of this method may be good, but they are not uniformly successful.

Sclerosing fluids, such as sodium morrhuate, quinine and urethane, and sodium citrate are used to treat the deeper types of cavernous lesions. A fine needle is inserted through normal skin into the deeper part of the birthmark, and as it is withdrawn a small amount of the fluid is injected along the path of the needle. This should not exceed 0·3 to 0·4 millilitre per injection. Several injections may be made at the one time, but care must be taken to avoid blanching or double dosing of any one area. According to the size of the lesion, a number of treatments at intervals of one or two weeks are required.

This form of therapy, whilst it may be carried out in any consulting room, is accompanied by considerable pain lasting several hours, and occasionally by severe general reactions, and for these reasons is best avoided. The method is not advised for superficial lesions, in which it is often followed by necrosis and incomplete destruction of the nævus, or for lesions on the scalp, where it is followed by patchy baldness.

Radiation therapy is particularly suited to the treatment of the cavernous hæmangiomata, both superficial and deep. It is painless, easily administered and causes no constitutional upset. In competent hands it is both effective and safe, and the cosmetic results obtained are, as a general rule, far superior to those of other methods. It is essential, however, that therapy be instituted as soon as the condition is recognized, for not only is a small baby more easily managed under the X-ray machine, but, as has been pointed out by Watson, McCarthy and others, the radiosensitivity of hæmangiomata varies in inverse proportion to the age of the lesion.

Irradiation is administered in the form of radium or X rays. The latter are preferred, as the dosage may be accurately estimated at any given depth of tissue, and the penetration of the beam varied by altering the focal distance of the tube, the filter or the kilvoltage. It is thus possible to choose irradiation of a quality which will exert its maximum effects in the centre of the lesion to be treated, and at the same time lack penetration to damage underlying structures, especially epiphyses.

Further possibility of any radiation damage is avoided by splitting the treatment into small divided doses of 200*r* repeated each fortnight for four exposures. This dosage does not result in any visible reaction, and in the majority of cases causes a cessation of growth followed by shrinking of the lesion.

A second course of X-ray therapy is usually necessary when regression of the tumour comes to a standstill two to five months after the first series of treatments. At this time a further three or four exposures of 200*r* will bring about a complete disappearance of most lesions in eighteen months or two years.

The above-mentioned routine has been carried out at the Royal Alexandra Hospital for Children for the past four years, and no evidence of epiphyseal or other radiation damage has been observed in 819 patients treated by this method.

Whilst the surgical treatment of cavernous hæmangiomata can be carried out in any operating theatre by those accustomed to the technique of plastic surgery, it requires the admission of the patient to hospital and the administration of an anæsthetic. The method is accompanied by some degree of post-operative pain, and there is always some residual scarring.

For these reasons surgery should be reserved for the treatment of those cavernous lesions that have failed to respond to a reasonable quantity of radiation, and for the racemose type which are as a rule radio-resistant.

Surgery may also be indicated after irradiation as a plastic measure to take up loose skin which has been stretched over a birthmark.

Lymphangiomata.

Lymphangiomata are nævi made up of groups of dilated and cystic lymphatic vessels. They may be superficial or deep, circumscribed or diffuse, and occur in any part of the body, but most commonly in the head and neck, where a specialized form is known as a cystic hygroma.

The majority of these lesions are radio-resistant, and surgical excision affords the only certain means of removing the tumours. Occasional lesions, however, are extremely sensitive to very small doses of X rays, and for this reason the method is worthy of trial before surgery is undertaken. Superficial lesions may be destroyed by refrigeration, but injection with sclerosing fluids is as a rule unsatisfactory, owing perhaps to the failure of lymph to clot in the same way as blood.

Mixed Types of Vascular Birthmarks.

Mixed types of any of the foregoing birthmarks may occur in the same lesion or as different lesions in the same subject, giving rise to many therapeutic problems which will require individual management.

Summary.

1. The various types of vascular birthmarks have been classified and described, and the management of each variety has been discussed.

2. The advantages of small divided doses of superficial X rays in the treatment of cavernous hæmangiomata have been emphasized, and the need to commence such treatment during the first six weeks of life has been stressed.

CHRONIC RHEUMATIC (RHEUMATOID) DIARTHRITIS AND THE SHOULDER–HAND SYNDROME.

By MICHAEL KELLY,
Melbourne.

> Perhaps "rheumatoid arthritis" would answer the object, by which term I wish to imply an inflammatory affection of the joints, not unlike rheumatism in some of its characters, but differing materially from it.
>
> —A. B. GARROD: *Gout and Rheumatic Gout*, 1859.

A HUNDRED years ago the only disorder to which the term "rheumatism" had been applied was acute febrile polyarthritis (rheumatic fever). Chronic arthritis of many joints was not regarded as rheumatic, and Garrod therefore rejected Charcot's name "chronic articular rheumatism" (1853). Instead he suggested the term "rheumatoid", which means "not rheumatism but resembling it".

In recent years, the meaning of rheumatism has been extended to include a large number of acute and chronic disorders of synovial and fibrous tissues. By general agreement, a group of these is segregated off and called rheumatoid arthritis. But we are not all agreed on the exact definition of its boundaries.

THE CHANGING SIGNIFICANCE OF "RHEUMATOID".

It used to be fashionable to describe rheumatoid arthritis as a well-defined symmetrical disease of unknown origin, commencing in fingers or toes. If the disease followed infection or an injury, or if it was asymmetrical or started in one or two large joints, another name was found for it. A classification was built on the supposition that each different precipitating factor had a separate clinical picture.

I was taught (for example) that dysenteric or gonococcal arthritis involved only single large joints. This supposition gave rise to the concept of infective (involving a few large joints) as against true rheumatoid arthritis. But this can no longer be sustained. The arthritides which begin in a few large joints often progress to involve a large number of small joints. Sometimes the symmetrical small-joint onset follows gonorrhœa (Balboni and Kydd, 1952) or dysentery (Paronen, 1948), or any other infection. Ralph Stockman (1926) described a case of ankylosing spondylitis which followed bacillary dysentery. Even when chronic polyarthritis follows injury to a single joint (usually large), the final picture does not differ much from the standard picture of rheumatoid arthritis (Kelly, 1951).

An increasing number of rheumatologists today believe that the term "rheumatoid" should not be reserved for a special clinical syndrome. They think that it should be applied equally to all cases of chronic non-specific arthritis with synovial or periarticular swelling, whether involving a single joint or involving many joints, whether apparently uncaused or due to such precipitating factors as injury, exposure, physical or mental stress, local or general infection. This view would hold that in all these cases there is an essential pathological unity, though the clinical pictures and the precipitating factors vary from case to case. If one of them is called chronic rheumatism, then all may be called so. "Rheumatoid" or "chronic rheumatic" then does not signify a well-defined entity or a specific constitutional disorder; it is a purely descriptive term, negative rather than positive, indicating the extent of our ignorance instead of building conclusions on incomplete data.

This is the spirit in which we should approach most of the problems which chronic rheumatism presents. We are confronted by a blank wall of ignorance, and most of our accepted classifications are built on guesswork.

CHRONIC RHEUMATIC MONARTHRITIS.

In a recent paper (1952) I have tried to show that chronic rheumatic or rheumatoid monarthritis cannot be sharply differentiated from rheumatoid polyarthritis. In some cases the monarthritis subsides completely; in others it subsides, but is followed years later by recurrence of the arthritis in the same or in a different joint. In other cases the disorder, after remaining monarticular for a variable time, spreads to involve one or several other joints; and the classical picture of polyarthritis may develop.

In certain joints chronic rheumatic monarthritis has been given popular names which take no account of its rheumatic nature—for example, periarthritis of the shoulder, intermittent hydrarthrosis of the knee, chronic sprain of the ankle, metatarsalgia, foot-strain. If patients with these disorders are followed through the years, many of them will be found to develop arthritis of other joints. Sometimes the disease spreads to one other joint, and for an indefinite time these two joints may be the only ones involved.

CHRONIC RHEUMATIC DIARTHRITIS.

The involvement of two joints may be called chronic rheumatic or rheumatoid diarthritis. Arthritis of a single joint usually spreads first either to its opposite fellow or to its neighbour (Kelly, 1949, 1951). We are not surprised, therefore, to find in diarthritis that, though any two unrelated joints may be involved at the same time, they are most commonly related either by symmetry (both shoulders, wrists, knees, ankles *et cetera*) or by propinquity (knee and ankle, knee and hip, ankle and metatarsus, wrist and hand). To this generalization there is a notable exception—the hand and the shoulder are frequently involved together while the elbow escapes.

Reports of Cases.

CASE I.—This is a case of bilateral arthritis of the shoulders. Mrs. M.D., aged forty-nine years, knocked her right elbow, which was so painful that she lay down for several hours, and vomited. There was no more pain in the elbow, but five weeks later the right shoulder became excessively painful, with limitation of movement. Three weeks after this the left shoulder also became painful and stiff. Six months after the onset both shoulders were still painful and stiff, the right with only 45° of abduction and the left with 60°. There was a gradual improvement under treatment, and a year later both shoulders were painless, with full range of movement.

CASE II.—This was a case of bilateral arthritis of the wrists. Miss M.P., aged seventy-five years, complained of pain and swelling of the hands of eight months' duration. At first they had been extremely swollen; then they improved, but they became painful again (with less swelling) when she fell on her left shoulder and fractured the neck of her left scapula (the shoulder still was stiff). Both hands were useless; she could not grip anything, and the wrists were painful when she tried to turn a door-knob. For a few years her knees had ached, without swelling.

Both hands and wrists were swollen, and the finger joints could not be flexed fully. But acute tenderness was found on the volar aspects of the wrists ("A" in Figure I). Plaster of Paris was applied continuously to the left wrist, so that the fingers could be used and the forearms rotated (Figure IIA and B). The pain ceased forthwith, and the swelling of the hand soon subsided. Four weeks later a removable splint was made for the left wrist, and plaster was applied continuously to the right; the pain and swelling of the right hand subsided.

Six months later the patient wrote to say that she had had no more pain or swelling in her wrists and hands.

CASE III.—This was a case of bilateral arthritis of the metacarpo-phalangeal joints. Mrs. F.V., aged thirty-eight years, said that her ankles had swelled first and settled down; then both hands had become painful a month before, with stiffness of the fingers. She could not flex the interphalangeal joints of either hand, but the only tenderness was on the palmar aspects of the metacarpo-phalangeal joints (see "B" in Figure I); the flexor tendons were involved. Plaster of Paris was applied to the metacarpophalangeal joints of both hands so as to leave the interphalangeal joints free. Two weeks later she had full range in all the fingers, and the hands were completely painless. There has been no recurrence in two years.

CASE IV.—This case is one of bilateral arthritis of the hips with acute polyarthritis. Mrs. R.H., aged thirty-five years, had had stiff hips since childhood. When she was twelve years old she fell and injured the right hip. It was painful for a long time and gradually became fixed; then the left hip did the same. Since then she has walked by rolling her pelvis; she is now married, with two children.

She had no more articular trouble until May, 1950, when she had pains all over, the knees and the hands swelled, and she had a rise in temperature for a week. The swelling soon subsided, but since then she has been subject to polyarticular pains.

CASE V.—This is a case of bilateral arthritis of the knees. In a young girl, aged fifteen years, who had no previous rheumatic history, the knees suddenly became grossly distended and painful two weeks after a sore throat. There was no pyrexia. Radiological and other investigations gave normal findings. After several weeks of rest in bed the swelling had not subsided. It eventually subsided when plaster of Paris was applied.

CASE VI.—This was a case of bilateral arthritis of the knees. Miss A.M.E., aged fifty-six years, said in February, 1948, that her illness had commenced a year previously with severe pain in the left thigh; then the metacarpo-phalangeal joints of both hands had swelled and the swelling had gradually subsided. After a few months the left knee suddenly became painful and swollen; then the right knee swelled, but was not so painful. On examination of the patient, both knees were grossly distended.

When the left knee had been distended for four months and the right for three months, plaster of Paris was applied to both knees from the groins to the malleoli, and the patient was allowed to walk. On removal of the plaster a month

later there was no swelling. Flexion was gradually restored and the knees have given no further trouble.

CASE VII.—This was a case of polyarthritis fifteen years after bilateral arthritis of the metatarsal joints. Mrs. B.M.T., aged fifty-four years, had had painful and stiff shoulders for four months. First the right was more painful and stiff than the left; at the time of examination the left was worse. The muscles around the shoulders were wasted, and all movements of the scapulo-humeral joints were reduced by 50%. More recently she had had pains in the thighs and slight swelling of the right knee.

On examination of the patient, her feet showed old deformities of all her toes—bilateral *hallux valgus* with retraction and contractures of all the other toes. She said that fifteen years earlier the metatarso-phalangeal joints of both feet were very sore and swollen for six to nine months. Since then she had had no more pain in her feet, but six years earlier she was laid up for six weeks with sciatica.

CASE VIII.—This was a case of bilateral arthritis of the ankles. Mrs. V.P.B., aged fifty-six years, fell in May, 1950, and fractured her sternum and the left side of her pelvis. She spent eight weeks in bed, and was doing well after getting up. Four months after the injury the left ankle, and then the right ankle, suddenly became painful and swollen. She had had several rheumatic episodes in her life. When she was aged thirty years her hands were painful and swollen for a time; in January, 1949, she had neuritis of the left arm; the left knee had swelled once. In February, 1950, she sprained her left ankle, and it was swollen for ten days.

On examination of the patient in October, 1950, the joints were all normal except the ankles, which were extremely swollen, with œdema extending half-way up the tibiæ. With rest and routine treatment they slowly settled down during the next three months.

CASE IX.—This case was one of arthritis of the left wrist and right knee. E.C.E., a man, aged forty years, had a heavy fall on his wrists in November, 1948. The wrists were not swollen or painful afterwards, but a month later the right wrist became swollen and painful. In February, 1949, the left knee swelled, and for seven months he had only two painful and swollen joints. Then the right knee swelled.

CASE X.—This case was one of arthritis of the knee and ankle. G.M., aged seventy-two years, suffered in April, 1940, from painful swelling of the right knee and ankle. This subsided in five weeks. In July, 1940, the left knee suddenly became distended and painful, and the foot became œdematous. There was no history of injury, and X-ray examination of the knees revealed no abnormality. He rested in hospital for three weeks; morphine was required to control the severe pain in the knee and ankle. The pain and swelling then subsided gradually over a course of several weeks.

CASE XI.—This was a case of arthritis of the knee and hip. Mrs. A.M.D., aged seventy-six years, has had a painful and swollen right knee for twenty-eight years. The cause is unknown. Gradually a valgus flexion deformity of the knee came on, with torsion of the lower part of the leg. She was able to pursue her normal activities until two years before examination, when pain developed in the right hip. Now there is limitation of all hip movements, and the X-ray film shows arthritic change.

CASE XII.—This case is one of arthritis of the knee and ankle. Mrs. C.M.M., aged forty-five years, had had pain in her right knee for six months. Ten weeks prior to examination the knee suddenly became grossly distended, and a flexion deformity gradually developed. The right ankle swelled at about the same time, with pain.

On examination of the patient the distended knee could not be fully extended, and the ankle and foot were grossly swollen. No other joints were involved. A caliper was applied to assist the weak quadriceps in keeping the knee straight, and the patient was allowed to walk about. The patient is still under treatment.

CASE XIII.—This was a case of arthritis of the ankle and the metatarso-phalangeal joints. Mrs. J.C., aged fifty-four years, had had a backache at intervals for twelve years, relieved with procaine injections two years prior to examination; X-ray examination of the spine revealed no significant change. For three years her right ankle has been weak and painful, with intermittent periarticular swelling. For three months her right second metatarso-phalangeal joint has been swollen and painful. There is a significant family history; her father had rheumatoid arthritis and her brother had rheumatic fever.

CASE XIV.—This case was one of arthritis of the shoulder and metacarpo-phalangeal joints heralding the onset of rheumatoid arthritis. Mrs. A.O'C., aged thirty-four years, who was subject to sore throats, had her tonsils removed. Two weeks later the metacarpo-phalangeal joints of her right index and middle fingers swelled and became very painful. The pain spread to the right shoulder, and it and the hand were very painful for several months before the left shoulder and hand were involved. During the past seven years nearly every joint in the body has been affected. Most of them recovered, however, and now her chief complaint is arthritis of the finger joints with ulnar deviation.

CASE XV.—This case was one of residual arthritis of the shoulder and hand after remission of polyarthritis. E.J., aged sixty-nine years, had had an attack of *herpes zoster* three years earlier on the left side of the abdomen. Afterwards backache persisted; then fleeting but persistent pain appeared in the limbs. A few months later his right knee swelled; then the shoulder, wrists, elbows and left knee were involved. Six months ago a remission commenced, and the arthritis disappeared from every joint except the right shoulder and right wrist. The shoulder is still stiff and mildly painful, with limitation of all movements, and the wrist is tender and slightly swollen.

Symmetrical Arthritis of Two Joints.

Bilateral arthritis of two joints is so common that it gets little notice, and it is seldom mentioned in the literature. When the knees are affected it may be called bilateral intermittent hydrarthrosis, but special names have not been given to bilateral arthritis of other joints. When the process is acute in the hips, bilateral ankylosis may occur rapidly (Case IV). When it is less acute we usually call it bilateral osteoarthritis of the hips, because the stress of weight-bearing on a small articular surface causes early loss of cartilage and osteophyte formation, both of which can be detected radiologically.

Painful swelling of both wrists or both ankles is common (Cases II, VIII). Spread from the ankles is not common, and a diarthritis may persist for years without spread to other joints. After the wrists have been involved for a while, the process may spread to the shoulders—as in a case reported by Young and Pearson (1952). Mauvoisin and Jarrot (1951) reported a case of bilateral arthritis of the wrists in a patient who had been using a vibratory drill.

When hands or feet are involved the arthritis is usually called the small-joint type. Here a row of joints (metacarpals, metatarsals) may be considered the functional equivalent of a larger joint. But this is not properly a diarthritis; Cases III and VII are reported in order to demonstrate that arthritis of the metacarpo-phalangeal or metatarso-phalangeal joints may go into remission without spreading to other joints. Coste and Bourel (1952) and Mauvoisin (1952) recently reported bilateral arthritis of the metatarso-phalangeal joints of the thumbs; Wilson (1952) has reported four cases of arthritis of the terminal joints of both little fingers.

Bilateral Arthritis of Shoulders.

In chronic polyarthritis the elbows are usually involved late—or not at all. Arthritis of the elbows alone is therefore not common. Painful stiffness of both shoulders is often seen, especially in old people, when the muscles of the shoulder girdle may waste away and the general health may decline. Porsman (1951) has recently called attention to this (see Cases I and VII). There is no reason for thinking that symmetrical arthritis of the shoulders differs at all in pathology from arthritis of any one, or two, or many other joints. Persistent arthritis of both shoulders often spreads to the wrists or the hands (Steinbrocker and others, 1948; Kelly, 1950; Young and Pearson, 1952); sometimes it occurs after myocardial infarction.

Arthritis of Two Asymmetrical Joints.

When the two joints are not symmetrical any combination may be seen. Arthritis of the knee may coexist with arthritis of any other joint, the commonest being the ankle of the same side (Cases X and XII). This combination is nearly as common as the combination of shoulder with hand.

THE SHOULDER-HAND SYNDROME.

As we have seen, there is a special association between the shoulder and the wrist (or hand). In early polyarthritis the shoulders are often involved next after the hands; and almost as frequently a shoulder is painful first and the hands become painful later. Often the spread ceases after only the two joints are involved. Steinbrocker and others (1948) have carefully described this well-known phenomenon and called it the shoulder-hand syndrome.

It has been recognized for years that the shoulder may become stiff after a severe injury to the hand or wrist. The medical attendant has often been blamed for failing to order the patient to exercise his shoulder; but I am not sure that the story is as simple as this. We are on

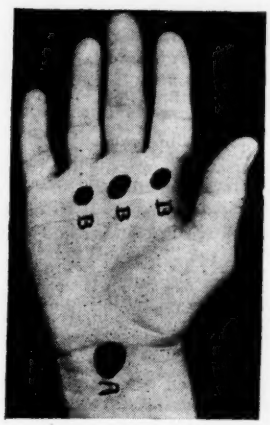


FIGURE I.

Palmar view of hand and wrist. A, site of acute tenderness in arthritis of wrist; B,B,B, sites of tenderness in arthritis of metacarpo-phalangeal joints.

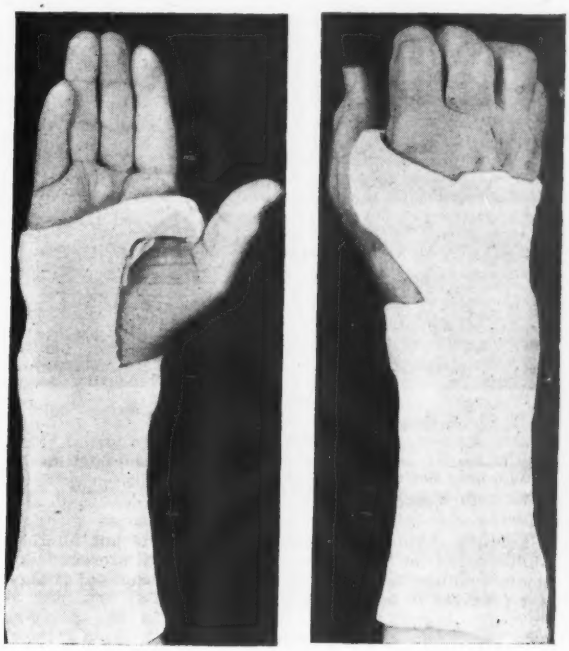
safer ground if we assume that stiffness of the shoulder means that the capsule has been actively inflamed—that is, that periarthritis is present.

But injury is not the commonest cause of this syndrome. In Steinbrocker's series only five out of 42 cases were due to injury, and in the series of Young and Pearson (1952) only three out of 23. More than half were of unknown origin; the others followed hemiplegia, myocardial infarction, *herpes zoster* and infection of various kinds. Often the pain starts in the hand and ascends to the shoulder; and nearly as often it descends from the shoulder to the hand. No matter what the original cause, the final picture is that of a painful, adducted shoulder with a painful, swollen hand whose fingers cannot be fully flexed.

A good deal has been written about vasomotor abnormalities from interference with sympathetic supply or with somatic nerves at the intervertebral foramina. But the swelling often has a local cause, which can be found by careful examination. We know that œdema of the dorsum of the hand may be induced by a furuncle on the wrist or an infection of the palm. But it may also be induced by acute inflammation of a joint; and careful examination of many of these painful hands often reveals acute tenderness on the palmar aspect of the wrist (Case II, Figure I "A") or of metacarpo-phalangeal joints (Figure I "B").

When arthritic inflammation is confined chiefly to the palmar aspect of the wrist, local swelling is not permitted by the tough capsular ligaments, and is masked further by the transverse carpal ligament, which covers the flexor tendons. The sheaths of these tendons become involved; the wrist droops and the swollen fingers cannot be flexed. When the wrist is immobilized in plaster of Paris, the pain vanishes and the function of the fingers returns rapidly (Figure II).

Similarly, when the metacarpo-phalangeal joints are arthritic, the flexor tendons may be interfered with as they cross the palmar surfaces of the joints. The interphalangeal joints cannot be flexed, and all attempts at closing the hand leave the fingers straight, as they are flexed only at the metacarpo-phalangeal joints. The fingers become œdematous and later atrophic. If plaster of Paris is applied so as to fix the basal joints in extension and to allow flexion of the interphalangeal joints, rapid recovery is assured (Figure III; Case III).



A B

FIGURE II.

Arthritis of wrist. Plaster applied so as to allow all movements of fingers and thumb, and rotation of wrist. A, supination; B, pronation.

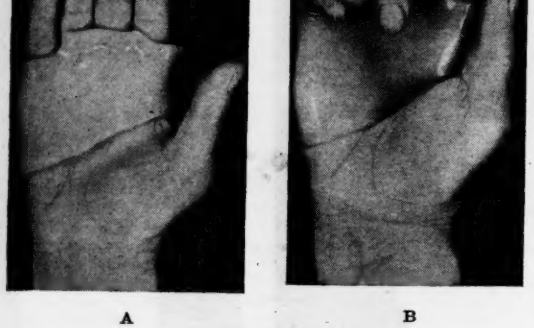
Every painful and swollen hand, therefore, should be examined carefully to make sure that there is no localized synovial lesion. In most of the cases one or more such lesions will be found, and treatment with plaster of Paris averts the threat of deformity to wrist and fingers. This treatment not only relieves the local pain—the patient's chief complaint—but frequently leads to a remission of pain in the shoulder. The spread of rheumatic pain from joint to joint is favoured by excessive use of a painful joint. Conversely, immobilization of a painful joint often leads to relief of pain in adjacent joints. In a case previously reported (Kelly, 1950) immobilization of both wrists in plaster completely abolished the disability of the wrists, and the shoulders soon recovered.

Relation of Diarthritis to Polyarthritis.

Case XIV indicates that the shoulder-hand syndrome may be merely a stage during the onset of rheumatoid polyarthritis; and Case XV suggests that it may be a stage during remission. The synovial and capsular inflammation does not differ in pathology from rheumatic inflammation of other joints.

In each joint the characteristic signs are secondary to the primary inflammation of the synovial membrane. The shoulder is fixed in the first place by pain and muscular spasm, and only later by shortening of capsular ligaments. The wrist droops only if the hand cannot be used. In the knee the joint is often grossly distended, with a good range of movement. In the hip movements are restricted, with early decalcification of bone and lipping of articular surfaces. And so on.

In a previous paper (1952) I have suggested that chronic rheumatic monarthritis is essentially the same disorder as chronic rheumatic or rheumatoid polyarthritis. The difference between them is like the difference between a furuncle and furunculosis; an unknown constitutional factor is added which causes the process to spread.



A B

FIGURE III.

Splint applied so as to extend metacarpo-phalangeal joints and allow flexion of interphalangeal joints. A, fingers extended; B, fingers flexed.

Similarly chronic rheumatic diarthritis is but another manifestation of the same disorder. The process may remain confined to two joints, or it may subside, or it may later progress to polyarthritis.

Precipitating Factors.

In eight of these 15 cases the arthritis was apparently uncaused, while in seven it began soon after precipitating events, as follows: Case I, injury; Case IV, injury; Case V, infection; Case VIII, injuries; Case IX, injury; Case XIV, operation; Case XV, *herpes zoster*.

In any large series of cases of chronic arthritis, inquiry will reveal that a little more than half commenced without apparent cause, and a little less than half followed a precipitating event. In Steinbrocker's series (shoulder-hand syndrome) the proportions were the same; myocardial infarction was a common precipitating factor. In the present cases of diarthritis and in the previous series of monarthritides (Kelly, 1952)—both chosen quite at random—we find again that in something more than half the onset was apparently spontaneous.

When numbers of cases are considered, chronic rheumatic inflammation bears the same relation to precipitating factors, whether it affects one, or two, or many joints. Arthritis usually commences without precipitating factors, but they can be traced so regularly in 40% to 45% of the cases that their significance cannot be denied. This constant proportion cannot be fortuitous. The precipitating event acts as a trigger to set in motion a process which usually begins without precipitating events.

There is one feature common to all the precipitating factors—body tissues have been damaged. When the damage is local, a nearby joint may be involved first: arthritis of the shoulder after myocardial infarction; arthritis of the ankles after sprain of an ankle (Case VIII); arthritis of the wrist after a fall on the wrists (Case IX). When the damage is general (infection, exposure, operation), the onset is more likely to be polyarticular, though it may be monarticular. Thus the clinical picture is guided, to a limited extent, by the precipitating event. The evidence suggests, however, that the varying clinical picture conceals an essential pathological unity.

Treatment.

Some of the case records indicate the value of immobilization in suppressing rheumatic inflammation of joints. Amazing improvement in general health follows the abolition of pain and the suppression of a large inflammatory focus. Ankylosis does not occur if the correct technique is followed.

Cortisone suppresses all forms of active rheumatic inflammation of joints; and recent reports indicate that it relieves the pain of the shoulder-hand syndrome, even when the latter follows myocardial infarction. This supports my thesis that the changes in these joints represent a single form of tissue alteration.

Summary.

1. Chronic rheumatism is usually the cause of intractable arthritis of two joints (diarthritis).

2. Though the essential pathology of this disorder is always the same, the clinical picture depends on secondary factors and varies from joint to joint and from patient to patient.

3. Chronic rheumatic diarthritis usually involves two symmetrical joints (both shoulders, both wrists, both ankles, both knees) or two neighbouring joints (knee and hip, knee and ankle).

4. In the shoulder-hand syndrome the swelling of the hand and the stiffness of the fingers are usually secondary to arthritis of the wrist or the metacarpo-phalangeal joints.

5. Arthritis of the knees, wrists and metacarpo-phalangeal joints may be made to subside by immobilization.

6. In many cases diarthritis (including the shoulder-hand syndrome) progresses, if untreated, to polyarthritis.

7. In more than half the cases diarthritis begins without apparent cause. In the others it is brought on by a number of precipitating factors.

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OBSERVATIONS AND IDEAS ABOUT DAUGHTER–FATHER RELATIONS.

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ENVIRONMENTAL conditions play an essential part in the development and formation of character. Among them the personalities of the parents are particularly important. Numerous psychologists, whatever school they may adhere to, have endeavoured to assess the responses of children to the influences which father and mother exert on them by way of deliberate as well as unconscious means. The most urgent problem appeared to be a boy's attitude to his parents. We have been taught by psychoanalysts that the Œdipus conflict becomes manifest at an early age and disappears later if the mental development is normal, but if it persists during later life it leads to far-reaching consequences, based on hostility against the father, which is mixed with jealousy and with affection for the mother; in the more serious cases it may be expressed by ardent death wishes and incestuous desires. Relations between daughters and mothers have also been discussed, and an Electra complex has been established as counterpart to the Œdipus complex. The attitudes which fathers display to their daughters have occasionally received consideration. E. C. Oberndorf (1948) may be quoted: "If in analysing a tender love attachment of a father for his daughter . . . we discover undeniable sex components, this is no reason why the circumstance should be regarded as a defilement of parental relationship." In other words, the sublimation may go so far that the sex moments are completely disguised and the relations unobjectionable by the highest ethical standards. But on the other hand it has to be admitted that incestuous behaviour between father and daughter is "much more prevalent than we are accustomed to think as the district attorney of rural as well as urban communities can testify". Anybody with experience in forensic medicine and psychiatry will agree with this, and if often alcoholism—acute intoxication or chronic alcoholic degeneration—senile dementia, general paralysis or any other mental disease is found at the bottom, there remain certainly some cases in which respected, responsible and in their outer appearance well balanced individuals have had to be convicted for offences which they had committed over long periods.

Now it can be supposed that such crimes result for the most part from impulses and instigations of the male partner, and it is hardly imaginable that any completely sane girl may be driven by overwhelming desires to have carnal knowledge of her own father; if it happens, it may be taken as a proof of a deep-rooted mental disturbance in the girl. But girls may occasionally be haunted by incestuous dreams which appear strange and silly after awakening. Furthermore, a girl may show passive obedience to her father's criminal desires. But would any sane girl entice her father to interfere with her sexually or accuse him of violation and rape by wilful lies? There exists the notorious tale in the book of Genesis about the daughters of Lot, mentioned by Fritz Wittels (1948): "We do find the motif in the Jewish Biblical myth of the daughters of Lot lying with their father. . . . The Bible attributes all such guilt to the daughters who ply their father with such quantities of liquor that he becomes insensible." But it should not be forgotten that the story has a peculiar background. The proper words of the Old Testament refrain from any comment; there is neither condemnation nor approval. No man was left after the destruction of Sodom and Gomorrha, and there was no intent to gain pleasure and lust, but "to preserve seed" from the father. In those remote ages it was the just claim of any woman to bear children, and we learn from other biblical stories that sometimes quite unusual means to satisfy this privilege were sanctioned.

Common experience shows that the normal girl has a deep affection and sympathy for her father. Not rarely it may amount to almost boundless admiration and worship. In her early years, his image is the embodiment of indefinite power, associated with justice and goodness, and her faith in him may easily become fanatical so that in her opinion nobody should be allowed to disagree with him or even to oppose him. This attitude is, at the start anyway, not the outcome of any awareness of dependency. The little child knows soon that it depends much more on the mother's (or her substitute's) care and attention, and it is probably not of much importance that in Anglo-Saxon countries fathers like to attend to the little needs of their babies. The little girl's affection for her father is a kind of free gift, of emotional expenditure; reward is not expected, but gratification of emotional requirements, not of proper needs, is appreciated. She is happy if, in father's presence, she is able to express joyful feelings, and grateful if he is sympathetic with her sentiments. But she would hardly aim at being like him, because his world is obviously different from her own sphere. She may sometimes be able to develop masculine traits and perform manly achievements. But there are indisputable reasons why she can never become a being like himself; identification with her father may be imaginable to a certain extent, but never become complete. The father may be her ideal of a man, but never a model whose pattern could be fitted into her own personality. However, if the father is so deeply beloved that identification of any sort appears to be indispensable, a realization of bodily union may be the consequence, leading to incestuous dreams which are bewildering and thoroughly unintelligible to the conscious mind.

Under normal conditions the family actually depends on the father's work and earnings, and some day the girl has to become aware of it. This dependency cannot always be pleasant. A superiority is established which at times may be embarrassing. Limits of personal freedom and frustrations become evident; she may be prevented from pursuing her own aims, and undue interference leads easily to embitterment and rebellion. Now the human mind sometimes has its own ways of dealing with such situations. However difficult it may be in reality, the girl's imagination is quite capable of depriving father of the power abundantly bestowed by herself on his original image. A conversion takes place, and aggressive—we may say even "sadistic"—tendencies easily come into the foreground, but perhaps for a short time only; it need not quite be forgotten that not so long ago father was surrounded with the same girl's affection and attachment. By a trick of the mind the former hero, deprived of the attribute of power and prevented from being the decisive factor in her life, is deserving pity and sympathy, perhaps even nursing attention. Now he appeals to her motherly instincts, and so her own superiority is established. Accordingly the rebellious stage is ebbing and the way to a fair compromise opens. He is vested with power again, but this time it is mastered and controlled by the girl herself. His superiority can work only if it is required for her own needs; even the most self-conscious and strong-minded woman has her moments of weakness; she may be doubtful about herself and hesitate to go ahead with definite decisions. Then it is good to know that advice and comfort and guidance are available at any time from an authoritative person. The father is not allowed any more to interfere with her own schemes and intentions, but may be helpful whenever his help is required. From a ruling spirit he has become a good and reliable friend in need.

Such an aspect of the normal attitude of a daughter to her father is based on numerous common experiences, but to cause it to materialize certain conditions appear to be indispensable. A great deal depends on the relations of the parents between themselves. It is a general tendency of children to imitate the behaviour of adults, and quarrels and frictions inside the family have inevitably detrimental effects on a child's development, through the bad example as well as the necessity to take sides without being mature enough for a proper judgement. Furthermore, protection against deprivation of the barest needs has to be granted, and the girl should always be able to feel a reasonable amount of self-esteem and pride in the dignity and the

social standard of her family. Her relations with her father are growing up out of instinctual roots, but if the daily experiences are contrasting too obviously with the prefabricated father-image, the foundations of grave conflicts may be laid, leading to disappointment and dissatisfaction and finally to neurotic symptoms.

Yet with these arguments nothing is being said about the distortions the father-image may undergo in cases of insanity. This problem has hardly been taken up so far —it seems almost to have been overlooked. Now it is hardly worthwhile to approach it with prejudiced viewpoints before enough cases have been collected which may give some idea of the range of the problem. I shall record three cases, two of them of recent date and encountered by me at Lachlan Park Hospital. The third case was encountered by me as long ago as 1910 in Germany and published only in 1938 in German (Margulies, 1938).

CASE I.—The patient was brought up as an adopted child of an elderly couple, gentle and decent people of whom she was very fond. The fostermother had died two years earlier; her husband was still alive and about eighty years old. The patient was married and seemed to be quite happy, but regretted that for unknown reasons she was not able to have a child. At the age of thirty-four years a psychosis developed; she accused herself without any foundation of being a thief and an unfaithful woman, infected with venereal disease. She pretended to have associated herself with various men, not even knowing their names. She had vivid auditory hallucinations and improved superficially with insulin and electroconvulsive therapy. But a trial at home lasted only five months, and some weeks before her readmission to the hospital she had been obsessed with the idea that a brother of hers, at that time far away in another State of Australia, was locked in next door and severely tortured by her father. She accused him also of having murdered his wife and torturing her husband. She said that voices had reported it to her, but admitted that they were silly ideas.

This patient was never in a fit state for closer examination, and an attempt to get at the roots of her delusions requires some guesswork. In the centre we find the symptom of passionate self-accusation, and it could be expected that a desire for punishment was growing up from there. In this position it was also fairly natural that the father was selected to execute the chastisement, and it hardly matters that he was not her proper father. He was originally a respected and trustworthy personality, a satisfactory father-substitute. But her desire for castigation was not unmixed; there were also instinctual urges for self-preservation and evasion, probably concealed from the conscious mind. So it happens that the father, vested with authority and immense powers, does just the wrong thing. Instead of turning against herself, who deserves harsh and inexorable treatment, he uses his power against innocent and beloved individuals; he tortures her brother and her husband and seems to enjoy it. A further associative step makes it clear to her that it is not even surprising, because he had murdered his wife. His power and capacity are not questioned at all, but are used against anything she loved and adored. All this was experienced in a vivid fashion with a tone of immediateness and reality. The events passed by like dreams. There was no opportunity to put any logical order into the experiences. It was not understandable to the sober mind, and if on a later occasion she was able to some degree to apply proper judgement, it was quite strange to herself and, in her own words, "silly". This picture of the relations with her father is certainly very distorted, not surprising from a schizophrenic patient. But there are still some structures left which are not quite different from those of normal daughter-father relations—the ruling father, interfering unduly with persons she loves, a personification of immense and uncanny power beyond her control.

CASE II.—A girl, aged twenty years, came to the hospital in a confusional state; the history suggested hysteria, but serious suicidal tendencies were mentioned and during her stay at the hospital suicidal attempts were eventually undertaken. Her mental state had changed five months before her admission. She had lived in apparently happy circumstances, loved sports and won prizes, was sometimes mentioned in the local paper, and when she left home to take up a job her photograph was published. She was successful in her occupation and liked it. This picture of a happy family background was misleading, as will soon be seen. She was engaged to a decent, good-looking and prosperous man, some years older than she, but she had recently broken off the engagement in favour of an English sailor; this man was described as a heavy drinker, who induced her on many occasions to drink much more than was good for her.

It was thought that the behaviour of her father was among the eliciting factors of the psychosis. According to a medical report he had more than once used nasty language against her, blaming her without reason for loose conduct in sexual matters; in the opinion of her doctor it made her repress her natural desires to the utmost. During the confusional period she stated expressly: "I hate my father!" Later on, when she was on the way to recovery, she did not remember anything of this sort. She pretended not to know that the father had ever offended her or that she had mentioned her feelings against him. She made the following statement about the home conditions: her mother was very deaf and had nothing to say, the father was short-tempered and sometimes drank too much. The only person she was really fond of was her grandfather. These cautious remarks were afterwards supplemented by another member of the family; the father was described as a heavy drinker who quite frequently made nasty remarks to his children, but nobody ever took him seriously. All of them were sure that he was irresponsible and that his words did not matter at all.

The medical opinion that the father's hostile attitude against her had a detrimental effect on her mental health and was one of the main sources of the psychotic state seemed at first sight to be well founded. Her casual remark that she hated him was apparently a definite confirmation of this view. But afterwards it became less convincing, as she in a sober mood failed to remember anything of this sort and did not admit that she had ever been offended by him. Finally it became obvious that he was a low-minded fellow and an incorrigible and irresponsible drunkard. But in spite of this argument it turned out in the end that her relations with her father were very important for her, if in a somewhat more complicated way. As a well brought up girl she was cautious in her statement of the father's character and did not betray any undue emotion on this occasion. But in the course of several interviews it was shown that relations which we might consider normal had never existed between herself and her father. She was fond of her grandfather, and that may be sometimes a satisfactory substitute for a father's sympathy if the father has died early or is for some other reason unknown to the girl. It is different if the father exists but his actual features are incompatible with the ideal father image. So it happened that she was not only deprived of a source of gratification from her early days, but actually had missed something essential for the development of a normal emotional life. Now somebody had crossed her way who attracted her, but was a rude fellow and drunkard. That reminded her of her father, and this identification was probably one of the reasons why she was ready to associate herself with this unworthy man. She broke off her engagement and regretted it soon. Now she was not only disappointed but forced to abandon definitely the father image and to overcome a deep-rooted instinctual desire. That could not be done easily. She had to go through a critical stage before she was able to take a rational view for the conduct of her future life. She had to sacrifice an important ideal and be content with a substitute, without the prospect of ever finding the kind of gratification for which she was longing.

CASE III.—A vicar's daughter from western Germany, twenty-eight years old, was examined by me in 1910. Since childhood she had shown schizoid symptoms, mainly mannerisms of speech and persistent infantile behaviour. Her father, notwithstanding a high educational and intellectual standard, was a neurotic weakling, her mother forceful, domineering and temperamental. The patient was a gifted student of painting and attended an arts school at Munich. An acute psychosis broke out while she was with her father on a holiday at a North Sea island. They had a very stormy passage over the sea, and she became seasick and was struck down by a heavy wave which flooded the deck of the small ship. After their arrival she made the acquaintance of a man to whom she became engaged. Some years before

another engagement had been dissolved and had left her highly strung, disgusted and beset with neurotic symptoms. This time the engagement was received with the full sympathy of her family and satisfaction for herself. But it soon changed, and she had doubts if she was fit to marry at all. She had some talks about it with her father. One night when she felt sick and was shivering she went into the father's bedroom and after a fairly eccentric conversation about religious subjects she told him that she was going to break off the engagement. She was just leaving the room when suddenly she screamed and shouted at the top of her voice: "The world is perishing!" She became violent and scratched her father's face so that it started bleeding. Later she gave an account of this event which was the outcome of sheer imagination. She stated that her father had raped her, but when she saw his blood running he appeared to her like Christ on the Cross. She was taken to a mental hospital, where she was extremely agitated and subject to vivid hallucinations and visions. She gave current and detailed descriptions of her experiences which centred about the destruction of the world, and she took part in every phase of this frightful event. On a certain occasion she saw a ship wrecked with her father on board, and he was in immediate danger of drowning. She prayed passionately for his rescue and implored the crew to save him at all costs. Almost immediately before this she had said that she wanted to stick to her engagement.

The outbreak of the psychosis was due to emotional tensions which she lived through during a short time. There were the gale on her sea passage, the engagement which was accompanied by contrasting feelings, some religious motives, and finally painful sensations from the menstruation which had just taken place. All these single features were put together in delusional experiences of a complex character; it was actually a creative act, and in the centre of it was the destruction of the world. Now she never realized that it was altogether made up by herself. Everything was taken as real, and everywhere special purposes were behind the delusional appearances. The idea of being raped and all that was associated with it were particularly purposeful. She felt obliged to arrive at a decision about her engagement, and if she was raped and had lost her chastity she was forced to abandon it. At the same time it was right that the whole world had to be destroyed when such an outrageous crime had been committed by her own father. But the ambivalence of a schizophrenic enabled her not only to pity him but to give him the halo of a saint. A purpose is still more distinct with the other vision—the wrecked ship with the father in deadly danger; she had expressed the desire to stick to her engagement; now the father was the only witness of the rape. He had to be put away somehow and—lo and behold! —it happened immediately as desired, and again the ambivalent behaviour—pity and prayer for rescue.

In this case it seems hardly possible to explain the symptoms by comparison with normal daughter-father relations—a girl accusing her father of a crime against herself just to create a suitable background for the reality of savage visions. Analysis enables us to get a certain understanding of the motives involved, since we have some idea about the peculiarities of the schizophrenic mind; but no sympathetic approach can be imagined.

Summary.

Some ideas of daughter-father relations have been outlined according to common experiences. Observations on three mental patients gave the opportunity of discussing changes which such relations undergo under psychopathological conditions.

Acknowledgements.

My thanks are due to Dr. J. R. V. Foxton, Medical Superintendent of Lachlan Park Hospital and Director of Mental Hygiene of Tasmania, for encouragement and advice in the preparation of this paper.

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Reviews.

Surgery for Nurses. By James Moroney, M.B., Ch.B., F.R.C.S. (England), L.R.C.P. (London), with a foreword by Miss Dorothy M. Smith, O.B.E.; Second Edition; 1952. Edinburgh and London: E. and S. Livingstone, Limited 9″ × 6″, pp. 688, with 585 illustrations. Price: 27s. 6d.

IN the second edition of "Surgery for Nurses" by James Moroney nurses will find a book which gives them a complete survey of surgery for their examination purposes, as well as a reference text-book for their work after training has finished. The book is primarily written to comply with the syllabus of the General Nursing Council of Great Britain, but its completeness ensures that it is serviceable wherever it may be used. All branches of surgery are discussed from a practical viewpoint, and each chapter is fully illustrated. There is a total of 585 photographs and diagrams, some of which are in colour and all of which have been carefully chosen to add descriptive value to the text. The various sets of instruments required for specific operations are pictured as well as such procedures as catheterization and blood transfusion, to mention only two.

The pre-operative and post-operative care of the patient, anæsthetic precautions, and shock are other additional topics—all of which go towards making this work one of the most practical of its kind, and one which can be recommended confidently to all training hospitals.

A Short Practice of Midwifery for Nurses (Jellett). By J. Bernard Dawson, K.B.E., M.D., B.S. (London), M.D. (Adelaide), F.R.C.S. (England), F.R.C.O.G., F.R.A.C.S.; Fifteenth Edition; 1952. London: J. and A. Churchill, Limited. 7½″ × 5″, pp. 464, with five plates and 188 text figures. Price: 16s.

THE fifteenth edition of "Midwifery for Nurses" incorporates many additions, bringing its instructions in most respects into line with modern obstetric practice. Dawson stresses once more the importance to the midwife of obstetrical asepsis and good antenatal supervision, and the chapters on these two important subjects cover them in considerable detail.

Much of the text is concerned with the diagnosis of normal and abnormal states in pregnancy, labour and the puerperium, and while some of it is beyond the scope of nursing practice, nevertheless the action to be taken by the nurse in the event of emergency is described in detail. The treatment of such conditions as uterine inertia and the toxæmias may seem to be discussed rather inadequately, but the principles of treatment are enunciated, and the nurse is left with the assurance that the management of these and other serious problems is the province of the medical attendant.

This volume continues to fulfil the purpose of presenting to the pupil midwife the essentials of her art, to enable her to realize when an abnormal state threatens or becomes apparent, and above all to appreciate the meaning and the practice of asepsis.

A Handbook of Pædiatrics for Nurses in General Training. By Q. M. Jackson, S.R.N., with a foreword by Kenneth H. Tallerman, M.C., M.A., M.D., F.R.C.P.; 1952. London: H. K. Lewis and Company, Limited. 7½″ × 5″, pp. 108. Price: 9s.

THIS excellent little book is one that every nurse will be well advised to buy. It is a first edition written by a nursing sister who has specialized in the nursing of children and who knows and loves them as individuals, not diseases. The aim of the book is to set out very briefly all a general trained nurse should know about the common medical, surgical and orthopædic diseases of children, conditions of the newborn and care of babies. Normal figures are given for physical development, including pulse and respiration rates, heights and weights, *et cetera*.

The chapter on routine procedures sets out in detail the technique and requirements for such common nursing procedures as tube feeding and for such minor operations as blood transfusion and chest aspiration. There is also a particularly well set out form for history taking.

It is indeed refreshing to read in a nurses' text-book how to prepare a child psychologically for X-ray examination, surgical operations, and the doctor's examination, and how parents should be treated, that is, with consideration, given reassurance and accurate information about the health of their child, and, above all, more frequent visiting hours.

The humanity of this little book is well illustrated by the simple statement that all nurses should know their nursery rhymes and fairy tales, and a knowledge of how to repair toys is desirable. The information is accurate, up to date and concise, and though it is to be hoped that a future edition will see more on the feeding of sick children, there is little to criticize adversely.

Progress in Fundamental Medicine. By Paul Cannon, J. A. Cunningham, Paul Klemperer, Albert Kligman, G. K. Mallory, Tracy B. Mallory, J. C. Paterson, L. B. Stoddard, W. Kenneth Cuyler and J. P. Wyatt; edited by J. F. A. McManus; 1952. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 10½" × 7", pp. 316, with 74 illustrations and two plates in colour. Price: 96s. 9d.

"PROGRESS IN FUNDAMENTAL MEDICINE", edited by J. F. A. McManus, is an American "Recent Advances". Nine subjects are discussed by ten authoritative contributors.

Parenteral nutrition is discussed in the first chapter by Paul R. Cannon, and he emphasizes the necessity of using aminoacids for the purpose of protein synthesis and not as a source of energy for the body.

"Melanotic Tumours of Skin" is written by J. A. Cunningham, who covers the subject in an able manner, indicating the criteria of malignancy in junction nævi in the transition stage.

Paul Klemperer describes the pathology of systemic *lupus erythematosus* and its recognition as an entity, and there is a chapter on diagnostic mycology by Albert Kligman.

G. K. and T. B. Mallory have written upon various aspects of liver disease including histochemistry, function tests, hepatitis and cirrhosis. They quote Himsworth extensively. However, the evidence for cirrhosis of the liver in man due to nutritional deficiency is unconvincing.

There is an interesting chapter on histochemical techniques by J. F. A. McManus. The methods are mainly of research interest, but occasionally such methods are required in routine laboratories.

"Coronary Artery Disease" by J. C. Paterson is the best account of the subject we have seen. The initiation of the occlusion by intimal hæmorrhage followed by successive layers of thrombus is well illustrated and easily correlated with clinical manifestations.

Leland D. Stoddard discusses carcinoma *in situ* of the human *cervix uteri*. The illustrations in this article are not all satisfactory in contrast to those of the other chapters, but the subject is ably discussed and is reinforced by a section on the examination of exfoliated cells by the Papanicolaou method written by W. Kenneth Cuyler.

The final chapter by J. P. Wyatt on the non-silica pneumonoconioses is excellent.

This book covers a wide range of subjects. It is not written for the pathologist only, although the contributors are mainly pathologists and there is a pathological background to each subject. Clinicians should find it a most useful synopsis of recent advances in the various subjects.

There are occasional misuses of English words, but most of the articles are well written and easily read. The illustrations are good on the average and there is a full bibliography.

Notes on Books, Current Journals and New Appliances.

Family Doctor. Published monthly by the proprietors, the British Medical Association, Tavistock Square, London, E.C.1. Sole agents for Australia and New Zealand, Gordon and Gotch (Australia), Limited. Subscription for twelve months: 20s. (sterling), including postage.

ANOTHER attractive issue of this well-established medical journal for the layman has appeared for February, 1953. Special articles deal with training the memory, the making of a doctor, the birth of a baby, toys for small children, the backward child at school, heart surgery, laughter, recent work on influenza, sleep, hæmophilia and various other topics. Rosemary, *Family Doctor's* original Baby of the Month, has a double-page spread of pictures to herself. An illuminating (and amusing) paper presents the medical aspects of love or St. Valentine's syndrome. A doctor who was once an international Rugby player discusses "Is Rugby Dangerous?". The regular features make up good measure of sound and well-presented reading.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Clinical Investigation: A Manual for Practitioners and Students", by E. H. Stokes, M.D., Ch.M. (Sydney), F.R.A.C.P., with a foreword by G. E. Beaumont, M.A., D.M., F.R.C.P., D.P.H.; 1953. Sydney: Angus and Robertson. 9" × 6", pp. 640, with 344 illustrations, some in colour. Price: £5 5s.

The author's aim is to help the clinician to complete the investigation of his patient's condition in a reasonable time.

"Disabilities: And How to Live with Them"; 1952. London: The Lancet, Limited. 9" × 6", pp. 250, with six text figures. Price: 10s. 6d.

True stories of patients written for publication in *The Lancet*.

"Cancer in General Practice", by Ronald W. Raven, O.B.E. (Mil.), F.R.C.S., and P. E. Thompson Hancock, F.R.C.P.; 1952. London: Butterworth and Company (Publishers), Limited. 9" × 6", pp. 274, with 71 illustrations. Price: 43s. 6d.

Intended to help medical practitioners in the early diagnosis of malignant disease.

"Kielland's Forceps", by E. Parry Jones, M.B., B.S., M.R.C.O.G.; 1952. London: Butterworth and Company (Publishers), Limited. 9" × 5½", pp. 222, with 115 illustrations. Price: 49s. 6d.

Based on personal use of the instrument.

"Cardioscopy", by William Evans, M.D., D.Sc., F.R.C.P.; 1952. London: Butterworth and Company (Publishers), Limited. 10" × 7", pp. 162, with 207 illustrations. Price: 56s. 6d.

Intended primarily for cardiologists, but thought likely to be of use to the student as well.

"The 1952 Year Book of Drug Therapy (August, 1951-August, 1952)", edited by Harry Beckman, M.D.; 1952. Chicago: The Year Book Publishers, Incorporated. 8" × 5½", pp. 606, with 114 illustrations. Price: $5.50.

One of the "Practical Medicine Series" of Year Books.

"Dermatology: Essentials of Diagnosis and Treatment", by Marion B. Sulzberger, M.D., and Jack Wolf, M.D.; Fourth Edition; 1952. Chicago: The Year Book Publishers, Incorporated. 9" × 6½", pp. 592, with 65 illustrations, some in colour. Price: $10.00.

The first edition was published in 1940.

"The Art of Marriage", by Mary Macaulay; 1952. London: Delisle, Limited. 7½" × 5", pp. 108. Price: 12s. 6d.

The author is a medical practitioner and a magistrate and writes with authority and understanding.

"A Treatise on Hygiene and Public Health: With Special Reference to the Tropics", by Birendra Nath Ghosh, F.R.F.P. and S. (Glasgow), F.R.S. (Edinburgh); Thirteenth Edition; 1953. Calcutta: Scientific Publishing Company. 9" × 5½", pp. 802, with 151 illustrations. Price: 25s. 6d.

The first edition was published in 1912 and the twelfth in 1948.

"Problems of Consciousness: Transactions of the Third Conference, March 10 and 11, 1952, New York", edited by Harold A. Abramson, M.D.; 1952. New York: Josiah Macy Junior Foundation. 9" × 6½", pp. 156, with eight illustrations. Price: $3.25.

The subjects discussed are: "Consciousness and the Metabolism of the Brain", "Hypnotic Phenomena", and "Experimental Work on Sleep and Other Variations of Consciousness".

"The Surgical Clinics of North America"; 1952. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. Johns Hopkins, Scott and White Clinic. 9" × 6", pp. 298, with 95 illustrations. Price: £7 5s. per year in cloth binding and £6 per year in paper binding.

Consists of two parts—a symposium on pædiatric surgery (nine articles) from the Johns Hopkins Hospital, and a symposium on gastro-intestinal surgery (11 articles) from the Scott and White Clinic, Temple, Texas.

The Medical Journal of Australia

SATURDAY, MARCH 7, 1953.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

HUMAN CAPACITY.

> When you can measure what you are speaking about and express it in numbers, you know something about it, but when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind. (Kelvin.)

IF we really wish to know man we must study his traits and abilities, and when we apply to this Kelvin's dictum as indeed we must, we are faced with an enormously wide subject. We may look at the subject from an academic point of view, or from that of practical, everyday life. Most people would be more interested in the latter, but medical men and women, because of their scientific training, ought to be concerned with both. The present-day tendency in communal life is for a levelling-up and a levelling-down towards uniformity. Mediocrity is the inevitable result and humanity will not thrive on the commonplace. If we wish to rise above the mediocre we should be able to discover what height we may expect to attain; conversely, if we prefer to be lazy, it would be salutary to know how far we are likely to descend. This covers but one aspect of the subject; it has many facets and in connexion with all of them many measurements in the Kelvin fashion may be made. The difficulty and the fascination of attempts to do this are admirably set out in "The Range of Human Capacities", a book by that well-known psychologist, Professor David Wechsler.[1]

In stating his problem, Wechsler asks whether the differences between an Einstein, a Pasteur and a Shakespeare on the one hand and an average man on the other are real or only apparent; and by how much can and do individuals differ from each other—in short "is there a limit to human variability, and if there is does the limit differ from one trait and ability to another, or is it equal in all directions?" These are the questions which he tries to answer. He states that the importance of the questions to biologists, psychologists and anthropologists is obvious, but adds that they involve some of the most practical problems of human relationships—of ethics, education, industry and even politics. It should be explained that Wechsler uses the term capacity as indicating, for all practical purposes, ability. He points out that the general meaning of capacity is that of cubic content and so is synonymous with volume. It appears that anthropologists sometimes speak of body weight as a physical capacity. When stature is spoken of as a physical capacity, Wechsler thinks that the reference may be explained on the basis of the fact that height often serves as an index of growth, which in turn is classed as a capacity. He has tried to discover how human capacities, treated as "measures of" various traits and abilities, compare with one another. He states that the problem of the measurement of human capacities calls for several prerequisites. "In the first place, it presupposes that the traits and abilities investigated lend themselves to quantitative evaluation. Second, not only must they be capable of quantitative evaluation but their dimensions must be such as may be expressed in terms of units which lend themselves to the ordinary processes of arithmetic." Wechsler discusses the factors which determine the validity of the measurements made. If we set out to discover how amount of ability is related to the frequency with which it is met, we must first be able to measure with precision the trait or ability which we are investigating and then we must investigate a sufficiently large number of individuals to allow an adequate analysis to be made. Sometimes the difficulty of measurement is due not so much to the lack of an adequate measuring rod as to inadequate knowledge of the thing we wish to measure. This is true in regard to an individual's personality and traits described as emotional. The evidence is strong that in regard to personality we are dealing with, not a single, but an interrelated series of traits; "personality remains something which seems to characterize the individual as a whole rather than any particular aspect of him". Wechsler therefore omits personality from his study. In regard to the number of estimations to be made, he states that practically we are able to determine frequency distribution of various sorts without having to make "an infinite number of observations". (Being only human, we could not do this even if we wanted to.) The theory of probability enables these determinations to be made. There remain to be considered the possibility of errors of selection and "those influences of which we may not have been aware, and which later and more complete investigation may bring to light". Wechsler explains that: "The number of ways in which time, space and circumstance may produce variations is almost limitless, and not only nature, but the processes of human institutions, social and economic, are constantly resorting us." Wechsler finds that human capacities do not distribute themselves according to a normal curve as is often stated. With the exception of linear measurements, the distributions of most traits and abilities are asymmetrical. The ratios between the statistical constants obtained from distributions actually met in practice often deviate so much from their theoretical values that they lose both their validity and their usefulness. Other measurements such as those of range and variability are needed. Wechsler points out that biased and abnormal observations are more likely to occur at the extremes

[1] "The Range of Human Capacities", by David Wechsler, Ph.D.; Second Edition; 1952. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9½" × 6½", pp. 200, with 13 text figures. Price: 43s.

than in the middle or other part of a series of measurements, and he concludes that the omission of the utmost extremes would be a means of getting rid of the disturbing influence of the pathological case. On the basis of his own observations he estimates that the proportion of cases which may reasonably be dropped is not far from one to two-tenths of 1% of the total population—approximately two in every thousand. He therefore defines the normal range of variability as the distance or interval of ability which separates the second from the 999th individual in every thousand measured. The actual data on which his conclusions are based are set out in tables in an appendix; they cover 89 measured traits and abilities and consist of an analytical summary of the means, standard deviations, extremes and total range of these 89 items. The data are classified into six subgroups—measures of linear traits, measures of body circumferences, measures of metabolic rates, measures of physiological functions, measures of motor functions, measures of the weight of the body and of its divers organs, and measures of perceptual and intellectual abilities. These tables should be studied by interested persons—they do not lend themselves to analysis in this place. In reply to the question of what is the significance of the findings, Wechsler states three possible inferences: (i) The range of human capacities when calculated in true units of amount is exceedingly small. (ii) There are calculable limits to human variability which very probably are biologically determined. (iii) These limits partake of the characteristics of natural constants.

There are other chapters in this book which deal with such practical and philosophical aspects of life as range in productive operations, length of life and chances of survival, the effect and the burden of age, genius and deficiency. Each of these is a fascinating study and will possibly be dealt with in these columns at a later date. The important point at present is to draw attention to this book which itself reflects considerable intellectual capacity.

Current Comment.

THE TRANSPLANTATION OF JOINTS.

THE transplantation of whole joints is considerably more dramatic, and likely to be considerably more difficult, than the now well established and more limited procedure of bone grafting. However, it is possible and has been accomplished in a small number of cases. Work along these lines, mostly reported in Continental journals, has been going on for over forty years. In 1925, in an article translated from the German, Professor Erich Lexer, of Freiburg (Baden),[1] described experimental and clinical experience in joint transplantation beginning in 1907. His most satisfactory results were obtained with half-joint transplantations, but some of the results of whole joint transplantation, as reported, were at least encouraging; little success was obtained, however, when the whole joint was transplanted together with the joint capsule. It could not be said, of course, that the procedure was wholly satisfactory in any case. Sixteen years later, in a paper read before the Philadelphia Orthopedic Club, Hans May[2] stated that while transplantation of entire joints had been soon given up as impractical, transplantation of one epiphysis or one-half of a joint, particularly if done autogenously, had become a well established procedure. However, in spite of this statement, the idea of whole joint transplantation is one not to be lightly abandoned; and with the advent of the bone bank its possibility has assumed a new importance. This is pointed out by C. H. Herndon and S. W. Chase[1] in a paper read at the American Orthopedic Association's annual meeting in 1951; and they go on to ask why, if bone and cartilage can be successfully preserved and later transplanted, it should not be possible to preserve and transplant a whole joint. To study the feasibility of the procedure Herndon and Chase carried out a series of experimental studies with dogs, directing their attention first to transplantation of autogenous whole joints. The left knee joint was selected for study. The proximal third of the tibia and the distal third of the femur were exposed by subperiosteal dissection. The patellar tendon together with a fragment of the tibial tuberosity was removed and the quadriceps retracted medially. The tendon of the *extensor hallucis longus* and the attachment of the gastrocnemius to the femoral condyles were divided. The femur and tibia were then divided in "step-cut" fashion, and the entire knee joint, including the collateral ligaments, the cruciate ligaments and the menisci, was lifted free from its bed. The synovial membrane and articular capsule were excised except in the region of the collateral ligaments. The knee joint was then replaced in its original bed, and internal fixation was secured by means of screws or wire sutures. The patellar tendon was reattached, the *extensor hallucis longus* tendon was resutured, and the other muscle attachments were held in approximation with the bone surface by suturing the periosteal tube over the bone. A plaster spica was applied for two weeks and then removed, and the dog was allowed to resume weight-bearing at will. This operation is a replantation rather than a transplantation, but in effect it is comparable to a true autogenous transplantation. The early results were encouraging, and two other series were started, one with delayed homogenous grafts and one with direct homogenous grafts. In the former, the removed knee joint was placed in a deep-freeze unit with aseptic precautions, and the joint was replaced by a similar homogenous joint which had been stored at −20° C. for a period varying from one day to several weeks. In the latter, two animals were operated on simultaneously and the knee joints were exchanged. Of 56 dogs who survived the procedure, 18 had received autogenous grafts, 19 delayed homogenous grafts, and 19 direct homogenous grafts. After autogenous grafts functional results were routinely excellent in animals followed for as long as two years, and at worst only mild arthritic changes were observed. After homogenous grafts, both delayed and direct, early clinical results were encouraging, but after five or six months degenerative changes began in the joints and progressed; it is interesting to note that impairment of function was often much less than the joint changes might suggest. The histological findings were important. Some of the cells in autogenous whole joints remained viable after transplantation. The bone was rapidly revascularized, and the dead bone was replaced by new bone. The deeper layers of cartilage cells remained viable, but some degeneration of the articular surfaces usually resulted. All the cells in delayed homogenous transplants and most of the cells in direct homogenous transplants died. Revascularization and active osteogenesis were slow. Herndon and Chase point out that since similar changes occur in direct homogenous and delayed homogenous transplants, the method of preservation apparently is not the important factor in the early degenerative changes. The factor that produces these degenerative changes, which are much greater than those in autogenous whole-joint transplants, has not been determined, but it is thought to be probably related to a type-specific physico-chemical structure of bone. The clinical implications of this work are of great interest. When presenting the paper just quoted, Herndon expressed the view that, although he had had no clinical experience in the transfer of whole joints, he believed from the experimental data that one could expect satisfactory results from

[1] *Surg., Gynec. & Obst.*, June, 1925.
[2] *Ann. Surg.*, August, 1942.

[1] *J. Bone & Joint Surg.*, July, 1952.

autogenous transfers, particularly in non-weight-bearing joints, such as the small joints of the hand. He said that homogenous joint transplants, direct or delayed, healed satisfactorily, united to the host bone and were technically feasible; possibly in non-weight-bearing joints, with good cooperation by the patient, satisfactory clinical results might be expected, but in most instances, and especially in weight-bearing joints, long-term good results were not to be expected at present.

FAILURE OF TREATMENT WITH PENICILLIN.

THE failure of large doses of penicillin to effect cure in infections with organisms which are demonstrably sensitive to this antibiotic is a phenomenon which has aroused considerable attention at the bedside and in the laboratory. H. Eagle, who has published a good many articles on this and related subjects, has used the experimental approach in some recent work.[1]

He remarks that some failures may be due to walling off of the organisms in a focus which may not have a favourable environment for the drug, or may not permit efficient diffusion. Previous experiments have shown that larger inocula require a greater total dosage; so too does a greater delay between inoculation and treatment. This has been found not to depend only upon multiplication of the bacteria. Eagle's present work has been carried out with a proven virulent strain of group A β-hæmolytic streptococci. These organisms were inoculated into the hind leg muscle of mice, and after three, six, twelve or twenty-four hours separate groups of mice were given intramuscular injections into the opposite leg. The number of organisms was controlled by dark-ground examinations and the plating out of cultures, and the number of organisms surviving was estimated by spreading culture plates with emulsified tissue. Mortality was determined by keeping animals for twenty-one days. The factors investigated included the effect of the age of an infection on the rate of bactericidal action *in vivo*, the possibility of impaired participation by the host, the number of organisms present at the site of the inoculation, the diffusion of the penicillin into the muscle, and the metabolic activity of the organisms. The relative importance of these factors is already well known, and their relation to practical therapy is taken into consideration in everyday use. For example, it is well known that when bacteria are in an environment which permits their multiplication they are more readily killed by penicillin. Eagle points out that it has also been shown that resting bacteria placed in an environment favourable to multiplication are dealt with by penicillin before their increase in number has proceeded to a significant degree. There are, of course, factors of possible importance concerned with the effects of an inflammatory exudate on the bacteria and on the penicillin. Eagle has found that the streptococci in his experiments multiply rapidly at first, but that there is little change in the plateau value of growth for the next twelve to twenty-four hours. If treatment is not undertaken until this relatively static period begins, the organisms become refractory to penicillin. Cure may still be obtained, but it needs high dosage and persistence over a number of days. This may be due to the establishment of an unsatisfactory environment for the bacteria by the inflammatory process, which brings the bacterial cells into a resting or slowly metabolizing phase. The author quotes Biggers, who found that *in vitro* dormant and non-dividing bacterial forms appeared, which he called "persisters", and the suggestion has been made that similar persisters may be produced *in vivo*. Total sterilization might thus fail to occur. Eagle thinks it more likely that a considerable proportion of the bacteria in an unfavourable environment may prove refractory to penicillin. He has also found in the course of some as yet unpublished work that similar findings may be obtained in experimental infection of the kidney and the valvular endocardium by *Streptococcus fæcalis*. The practical value of the use of two antibiotics has been demonstrated in some infections met with in practice, and in principle, if not in theory, resembles the value of two anti-malarial drugs when resistance has limited the effectiveness of one previously successful. One interesting point with a practical bearing is that Eagle found that when resistance had developed there was no advantage in giving massive doses of penicillin in aqueous solution on the assumption that greater diffusion would be obtained; relatively low concentrations of gelled procaine penicillin were just as effective. Whatever may be the exact explanation of this phenomenon which may rob penicillin of its full power, it is important to use this or other antibiotics in the manner, at the time and in the concentrations which will produce the desired result.

[1] *Am. J. Med.*, October, 1952.

HÆMOPERICARDIUM IN MYOCARDIAL INFARCTION.

CASES have been reported in which effusion of blood into the pericardial sac has occurred in persons suffering from myocardial infarction while receiving anticoagulant drugs. The hæmopericardium so produced has been of sufficient degree to cause cardiac tamponade, although no rupture of the heart or of a coronary artery. The irregular action which sometimes characterizes the effects of some anticoagulants may so lower the prothrombin as to bring about bleeding from a vulnerable area, and in certain reported cases has been thought to be a significant causative factor, but M. W. Anderson, N. A. Christensen and J. E. Edwards have reported three cases of intrapericardial bleeding in two of which no anticoagulant preparation was used.[1]

One of their patients, who had the clinical and electrocardiographic signs of an anterior coronary occlusion and radiographic appearances suggestive of focal pneumonia, died after three weeks' illness, during which continuous treatment with dicoumarol was carried out. Autopsy revealed about 200 millilitres of blood, mostly clotted, in the pericardium. No rupture of the heart or of a vessel could be found. A second patient died after eighteen days, when hæmopericardium was discovered, again without rupture of the heart or of a coronary vessel. Signs of cerebral vascular lesions had been observed, but no anticoagulants had been given. A third patient had clear clinical signs of a myocardial infarction, and progressive deterioration of his cardiac state and weakness of the heart sounds suggested the possibility of a pericardial effusion. Blood was found by puncture, and his condition improved after the withdrawal of 50 to 75 millilitres. Review of the facts pointed to the diagnosis of a transmural infarction, and after a critical illness he made a modified recovery. The authors point out, as others have done, that it is important to watch for the signs of pericarditis, in particular persistent and recurrent pain and a friction rub, as these are of diagnostic value. This merely means, of course, that a fibrinous pericarditis may occur in the presence of a severe myocardial infarction, and that its anatomical site may also be of significance; but if to these signs there are added those of inflow stasis of mechanical origin, effusion may be present and the effused fluid may be blood. This third patient of the authors points a moral, for he did not immediately succumb and he had been given no drug which would lower his prothrombin blood content. It is not likely that many instances of this condition will be recognized, but as dicoumarol and similar substances are being widely used, and not invariably under full biochemical control, it seems wise to remember that bleeding from a spongy pericardium, as these cases show, may occur without provocation. It is surely logical to think that any undue lowering of the blood prothrombin level in the presence of a predisposing anatomical lesion may constitute an additional risk. It is reasonable to accept the authors' advice that should intrapericardial bleeding occur any anticoagulant drug must be suspended, and an attempt made to neutralize its effects by the administration of vitamin K_1.

[1] *Arch. Int. Med.*, November, 1952.

Abstracts from Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

Mumps Vaccination.

K. HABEL (*Am. J. Hyg.*, November, 1951) has studied the incidence and severity of mumps in vaccinated and control groups of sugar-cane workers brought to Florida from Barbados. They had been examined medically and immunized against smallpox, but reliable information about mumps in their past history was not available. The mumps infection arrived in the labour camp with the workers, and within three weeks all subjects had been bled and then given either a single dose or two doses of mumps vaccine or tetanus toxoid. The workers not presenting themselves at the clinic constituted the control group. The study of the primary blood samples (with virus neutralization in the chick embryo) showed that as a whole the population was a highly susceptible one; antibody was absent from a large proportion of samples. The incidence of the disease in vaccinated subjects was high within one month of vaccination, but thereafter fell steeply to less than five per 1000 at risk. The serum antibody result one month after the first dose of vaccine also showed a threefold rise in titre. The effect of the second dose could not be evaluated similarly, since the epidemic was waning amongst the control susceptible population. The severity of the disease was less when it developed in vaccinated subjects, and orchitis was less frequent.

Nucleic Acid Metabolism in Virus Infections.

D. J. BAUER (*Brit. J. Exper. Path.*, February, 1951) has studied nucleic acid metabolism in virus infections. He used four viruses which could be passaged in the mouse brain. He first studied the enzyme activity of normal mouse brain emulsion, by incubating one millilitre amounts of 10% brain suspension in buffer solution with one millilitre of substrate, which was usually made up in strengths of two milligrammes per millilitre, for suitable periods of time; then the concentration of the reaction product was estimated by a suitable technique. Three groups of enzymes concerned with nucleic acid metabolism were tested, desaminases, nucleosidases and nucleotidases, in brains infected with neurotropic vaccinia virus, lymphocytic choriomeningitis, neurotropic yellow fever virus and dengue virus. Results were expressed as changes of fractions of the normal values. While enzyme activities were sometimes unchanged, some considerable increases were found and some decreases. The author discusses the results in view of the known facts that virus itself has virtually no enzymes and that on entry into the cell it changes into a soluble phase and portion of its substance organizes and directs the enzymes of the cell towards synthesis of new virus. He points out that in the host reaction inflammatory cells invade the tissues and may carry with them new enzymes, but experiments previously reported have ruled out this possibility. He has constructed a diagram indicating the alteration of enzyme activity in the four viruses concerned, and shows that the alterations are not the same with all viruses. In dengue infection of mouse brain, the infective titre of the suspension is low, yet enzyme changes are much higher, and reasons are sought for this.

Survival of Staphylococci within Leucocytes.

D. E. ROGERS AND R. TOMSETT (*J. Exper. Med.*, February, 1952) have studied the survival of staphylococci within human leucocytes, as part of an investigation of the mechanism by which staphylococci initiate infection in man. They used hæmolytic, coagulase-producing, pigmented staphylococci isolated from human patients as their pathogenic strains, and coagulase-negative strains from skin and air as non-pathogenic strains. Human leucocytes were obtained from patients with high leucocyte counts who had received no antibiotics in treatment, blood being taken into citrate solution to give a final concentration of 0·3% citrate. The red cells were removed from the bottom and the leucocytes suspended in citrate plasma used at once. Mixtures of staphylococci and leucocytes were rotated at 16 revolutions per minute at 37° C., and samples obtained at varying times were stained either by Wright's or by Gram-Weigert's method. Other samples were used for slide cultures by spreading a drop of the mixture on a coverslip and inverting it onto moist agar on a slide and then incubating it at 37° C. Some preparations of defibrinated plasma were also used, and in some experiments the phagocytosis of staphylococci was contrasted with pneumococci and streptococci. It was seen that there was little difference of numbers of organisms ingested in whole plasma and in defibrinated plasma; while in experiments with pathogenic staphylococci, the numbers ingested were large, and the leucocytes after four to six hours were broken up. With pneumococci and streptococci the leucocytes remained intact, and the numbers of organisms ingested were small. Both pathogenic and non-pathogenic staphylococci showed a decline in the number of organisms that could be grown in the early part of the experiment; but the pathogenic organisms began to increase again after eight hours, while the numbers of the non-pathogens continued to fall. Organisms grown in plasma without leucocytes showed no fall in numbers; so the changes must have been due to their presence. It seems likely therefore that although ingested by the leucocytes, the pathogenic staphylococci must survive there, and return to active multiplication after the death of the cell. When estimates of time spent within the leucocyte were compared, the numbers of survivors amongst the non-pathogenic strains fell rapidly, while pathogenic strains persisted in appreciable numbers after twenty-two hours within the leucocyte. It was also noticed that intravital staining with trypan blue was not effective when applied to the pathogenic strains, which appeared pale and translucent, while those cells whose samples did not grow well on culture were much more darkly coloured. The authors consider that they have established the fact that pathogenic staphylococci are phagocytized by human leucocytes *in vitro* under conditions in which pneumococci or streptococci are rarely engulfed, and have shown that pathogenic strains can survive within the leucocyte for a considerable period of hours. Non-pathogenic strains failed to survive under these conditions. No light was shed on the mechanism by which this was achieved.

Serological Studies of Corynebacterium Diphtheriæ.

V. J. FREEMAN AND G. H. MINZEL (*Am. J. Hyg.*, January, 1952) describe cultural grouping and serological typing of diphtheria field cultures from the Pacific coast region of the United States. They found that many strains of toxigenic bacilli did not produce acid from glucose in heart infusion broth, and used this distinction as the first step in their classification. The first main group consisted of those which produced acid from glucose. Then the fermentation of starch was used to split off the members included in their group A, and serological tests made with individual strains established the existence of types which they numbered serially. The colony appearance of these on tellurite medium included the classical *gravis* strains. Those organisms which produced acid from glucose but which did not ferment starch constituted group B, with the classical *mitis* strains, and here serological types could be identified. Those organisms which did not produce acid from glucose or ferment starch composed group C, and included many *intermedius* strains, typed by serological methods. The technique used is a slide agglutination of antisera which have been absorbed free of common agglutinins. A series of some 200 strains were grouped according to this scheme, and 103 were identified by serological methods. In a serious outbreak in Oregon State, the causative organism was classified as group B type 2. The need for such a standard scheme is discussed.

Hæmagglutination with Extracts of Mycobacterium Tuberculosis.

A. W. POUND (*J. Path. & Bact.*, January, 1952) has made an evaluation of methods used in observations on the agglutination and hæmolysis of red blood cells treated with extracts of *Mycobacterium tuberculosis*. Extracts were made from heat-killed bacilli of the human type which were lethal to the guinea-pig. The technique involved extraction with acetone and ether in a Soxhlet apparatus of the bacillary bodies, which were then treated with phenol at 37° C. The phenol was removed by alcohol, and the residue was then treated in various ways to obtain the final material. Sheep red cells were washed and sensitized by varying amounts of extract, rewashed and made into a 1% suspension for testing sera. Sera were obtained from human patients and absorbed with sheep red cells in order to remove heterophile antibody. Equal amounts of serum dilution and sensitized cell suspension were set up for the agglutination test, and a reading was taken; then a dose of guinea-pig complement was added, the tubes were reincubated, and the hæmolytic titre

was read. It was found that three different extracts had been obtained from *M. tuberculosis* which would coat red cells. Two of these attached to red cells could bring about agglutination by sera of persons infected by the tubercle bacillus, and on the addition of complement, the cells were hæmolysed. Hæmolysis could be obtained with serum from some healthy Mantoux-negative subjects. The third component from *M. tuberculosis* modifies sheep red cells so that they are agglutinated by all human sera. The substance in the serum causing such agglutination does not appear to be an antibody.

Oral Treatment of Experimental Diphtheria.

L. F. HEWITT (*Brit. J. Exper. Path.*, June, 1952) has observed the effects of oral treatment of experimental diphtheria infections in guinea-pigs. With in-vitro sensitivity tests, *gravis*, *mitis* and *intermedius* strains of *Corynebacterium diphtheriæ* were first tested against terramycin, and were found to be uniformly sensitive to a range of 0·2 to 1·0 microgramme per millilitre of medium. After 50 serial subcultures in the presence of graded concentrations of the antibiotic, no resistance could be demonstrated to the antibiotic. The guinea-pigs were given an intracutaneous dose of 5×10^8 organisms in 0·2 millilitre of saline, which was sufficient to kill an untreated animal within twenty-four hours with typical pathological lesions. Four doses of terramycin given subcutaneously or by mouth prolonged the life of the animals to over one hundred hours. Prolonging the treatment up to five days made no difference to the survival time. A single small dose of antitoxin did not influence the outcome. Diphtheria bacilli could still be isolated from the site of inoculation, and their sensitivity to the drug was unaltered. The organisms were not recovered from any other part of the body. It would appear that the failure of the drug was its inability to sterilize the initial lesion.

HYGIENE.

Sonne Dysentery.

V. FREEMAN (*M. Officer*, July 12, 1952) reports the results of his investigations into an increase in the incidence of dysentery during 1951 in Islington, England, where dysentery is a notifiable infectious disease. He states that the diagnosis of Sonne dysentery was confirmed in 574 out of a total of 1172 patients investigated. These consisted of 1006 who were notified as having dysentery and 166 who were discovered to have dysentery during the investigation of the notified cases. The proportion confirmed each month was much higher during the earlier months of the outbreak. It varied from two-thirds during the early months to one-tenth towards the end of the outbreak. The probable origins of the infections were divided into six groups—isolated single infections, family outbreaks, day nursery outbreaks, school outbreaks, institutional outbreaks and infections that could not be placed in any of these groups because of insufficient evidence. The day nursery group was the largest group in regard to actual numbers and the group with the greatest risk in proportion to the number exposed. The author states that if the whole outbreak did not originate in nurseries it certainly spread rapidly in a nursery once a case occurred. There were 14 food handlers among those found to have Sonne dysentery, and 81 other food handlers were intimate contacts of these. There were 62 proved Sonne carriers who had no symptoms. Of the total of 1172 subjects with notified and discovered infections, 565 were males and 607 females, but the sex proportions showed considerable difference in the different age groups. Up to school leaving age the number of males affected (476) exceeds the number of females (394); but over the age of fifteen years there is a considerable disparity with only 89 males against 213 females. Of the total affected, 568 (made up of 314 males and 254 females), or nearly 50%, were under the age of five years, which shows the relatively heavy incidence in the youngest age groups. The heavier incidence in females over fifteen years of age is explainable upon the assumption that it is the young mother in particular, though it might also be the elder sister or the grandmother, who is the most likely attendant upon the young sick child. If this is the case, then it would support spread of infection by contact. There was, in fact, no evidence in the analysis undertaken that Sonne infection had been spread by transmission through food. In the great majority of cases those affected were treated at home by the family practitioner. Domiciliary treatment consisted principally of drugs of the sulphonamide group, and symptoms cleared rapidly. Treatment or observation was continued, however, until two or three negative results had been obtained from examination of stools. The stools of patients that had to be treated in hospital were free of dysenteric organisms in two to three weeks.

Serological Tests for Brucellosis, Syphilis and "Q" Fever.

E. LENNETTE, W. CLARK AND F. JENSEN (*Am. J. Pub. Health*, January, 1952) observed that the clinical differentiation between brucellosis and "Q" fever was often difficult and that the differential diagnosis depended on laboratory findings. It was also noted that many patients who had antibodies to *Coxiella burneti* in their blood also gave positive reactions to serological tests for syphilis. The relationships of the serological tests for brucellosis, syphilis and "Q" fever were then investigated. It was found that in the case of brucellosis and "Q" fever, difficulties in specific diagnosis due to the presence of anamnestic or non-specific reactions were rarely encountered. Antibodies to *C. burneti* were no more frequently encountered in syphilitic sera than in non-syphilitic sera. On the other hand, false positive results in complement-fixation tests for syphilis were observed in 32 (7·5%) of 427 ill persons in whom antibodies to *C. burneti* were present. A definite diagnosis of "Q" fever had been made in all but two of the 32 cases in which false positive results in tests for syphilis were observed. Serological tests for syphilis were performed on the sera from these 32 patients at intervals. It was found that generally the results were negative during the first and second weeks, positive during the third and fourth weeks of the illness and negative again eleven weeks after the onset of the illness.

Carbon Tetrachloride Mixtures in Fire-Fighting.

H. FAWCETT (*Arch. Indust. Hyg.*, November, 1952) draws attention to the dangers associated with the use of carbon tetrachloride in chemical fire extinguishers. He refers to accidents reported previously and reviews an incident in which two children were exposed almost fatally to vapour from a carbon tetrachloride mixture extinguisher which had been used in a confined space. Calculations indicated that they were exposed to a mixture of 74,000 parts per million of carbon tetrachloride and 8000 parts per million of chloroform. Little or no phosgene or other decomposition products apparently was involved. The author states that the impression has arisen that when carbon tetrachloride is used to extinguish a fire it is dangerous only if phosgene or other decomposition products are produced. However, an additional hazard may result from the toxic concentrations of carbon tetrachloride and other chlorinated hydrocarbons in the mixture that may occur if the extinguisher is used in a confined space. Chloroform may be added to carbon tetrachloride to reduce the freezing point of the mixture for use in cold climates. A plea is made for adequate warnings of the real hazard from using "vaporizing liquid" extinguishers in confined spaces unless respiratory protection is available and properly used.

Poliomyelitis and Atmospheric Humidity.

C. ARMSTRONG, J. DIXON AND W. CHADWICK (*Am. J. Pub. Health*, October, 1952) produce further evidence from an epidemic of poliomyelitis in Denver, Colorado, United States of America, in 1950 and 1951, in support of the theory that there is a correlation between the occurrence of poliomyelitis and the drying effect of inhaled air on the membranes of the nose and throat. They state that inspired air is warmed in the nose to approximately 90° F. and humidified to approximately 90% of saturation. It is obvious that the higher the relative humidity of the atmospheric air is at 90° F., the less will be its drying effect on the upper part of the respiratory tract. The authors produce charts showing the curve of poliomyelitis incidence by date of onset, the average atmospheric temperature, the average relative humidity curve for atmospheric air warmed to 90° F., and the rainfall, all by months. Charts for weekly intervals are also produced. All show a general correlation between the relative humidity of the air at 90° F. and the occurrence of poliomyelitis. The authors state that this, together with much additional evidence, points toward the upper part of the respiratory tract of man as being a body area significant in the seasonal spread of poliomyelitis and as possibly accountable for its seasonal incidence.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

LV.

THE GUMS IN HEALTH AND DISEASE.

THE gum may be defined as "the fibrous tissue covered by mucous membrane which covers the alveolar process of the upper and lower jaws and surrounds the necks of the "teeth". The Latin word for the gum, *gingiva*, is often used synonymously with the term gum. Of recent years in dental literature these terms have been separated, the gum being described as the soft tissue which covers the alveolar process, while the term *gingiva* has been restricted to the portion of the gum which surrounds the teeth above the level of the alveolar process.

THE GUMS IN HEALTH.

The anatomical structure of the gums closely resembles that of mucous membranes of other parts of the body except that it has a greater thickness of fibrous tissue. It is lined by stratified squamous epithelium of moderate thickness, the surface layers of which often become keratinized to some extent. The columns of fibrous tissue are intimately attached to the periosteum covering the jaws and to the periodontal membrane at the periphery of the tooth sockets.

The normal gum is firm on palpation and pink in colour, though the shade of pink varies with different races and individuals, and its margins lie in close contact with the teeth, surrounding their necks. The spaces between the teeth are occupied by prolongations of gum tissue known as gum papillæ. The gingival margin is thin and merges with the tooth surface with no perceptible space between the two. Between each tooth and its surrounding gingival margin, however, there actually exists a narrow anatomical sulcus approximately one millimetre in depth, so that the attachment of the gum to the tooth is slightly below the surface. This sulcus is known as the "gingival crevice" or "gingival trough". In a healthy condition the gingival crevice is lined by squamous epithelium, and this epithelium extends to the surface of the tooth to which it is very firmly attached. The gingival crevice is one of the points of danger in infective processes of the gums.

The gums have a very rich blood supply from branches of vessels which supply the underlying alveolar bone. The sensory nerve supply is limited and chiefly confined to the deeper layers, so that diseases affecting only the gums are not usually very painful unless they extend into the deep layers.

THE GUMS IN DISEASE.

For convenience gum diseases will be divided into (i) gum diseases due to local causes and (ii) gingival changes associated with systemic diseases.

This division is somewhat arbitrary, because systemic conditions are often factors in the causation of some of the diseases which appear to be of local origin. It is a convenient division, however, from the point of view of treatment.

The treatment of most of the localized gum diseases is the province of the dental surgeon or the specialist in periodontics or oral surgery, whereas the treatment of practically all the diseases included in section (ii) belongs chiefly to the medical practitioner. In many of these latter cases the correct treatment of the systemic disease promptly cures the mouth condition. Some require the cooperation of the dental surgeon.

Gum Diseases due to Local Causes.

Gum diseases due to local causes may be classified as follows: (*a*) marginal gingivitis (simple gingivitis); (*b*) atrophic gingivitis, (i) physiological, (ii) traumatic; (*c*) hypertrophic gingivitis; (*d*) mycotic gingivitis; (*e*) ulcerative gingivitis (Vincent's infection); (*f*) periodontal disease (*"pyorrhœa alveolaris"*); (*g*) neoplasms.

Marginal Gingivitis.

Marginal gingivitis is a very common disease. It may be generalized or confined to one or several areas. Many cases are subclinical. The first evidence of the condition noticed by the patient is the bleeding which occurs when the teeth are brushed ("pink tooth brush"). This apparently not very serious disease is really of considerable importance, as it is the initial lesion in the production of periodontal disease (so-called *pyorrhœa alveolaris*). "Pyorrhœa" used to be considered a disease of middle life and old age, but it is now realized that the changes leading to this condition may commence in childhood.

Ætiology.—Mastication of hard food has a stimulating effect on the gums and keeps them healthy. The diet of the majority of civilized individuals requires very little hard mastication; it is soft and sticky and readily adheres to the teeth and gum margins. This food debris causes local irritation to the gum tissue. Imperfectly contoured fillings overhanging the gum and badly constructed prosthetic appliances also contribute to the irritation. Dental caries near the gum margin is sometimes an important factor.

Clinical Features.—The gums appear reddened. Hæmorrhage occurs readily, though it may be only slight in amount. The gum margins and gum papillæ become thickened and stand away from the necks of the teeth; this facilitates the retention of food debris and increases the inflammation. In some cases the gum atrophies, but more commonly it hypertrophies.

Histopathology.—The principal histopathological changes observed are as follows: (i) The tissue is more vascular than normal, and the vessels are engorged. (ii) The epithelium of the gingival crevice is ulcerated, and the subepithelial tissue is exposed. (iii) The gingival tissue is infiltrated with large numbers of polymorphonuclear cells and/or chronic inflammatory cells.

Treatment.—The dental surgeon should eliminate any source of irritation, such as badly constructed fillings, badly designed prosthetic appliances, gingival caries *et cetera*. Dietary changes may be advised, but it is notoriously difficult to induce patients to change their diet as part of the treatment of what they regard as a not very serious disease. The use of hydrogen peroxide, one part in four of water as a mouthwash, is desirable. In some cases the application of one of the aniline dyes or a combination such as triple dye brings about rapid improvement. A paint greatly favoured by dentists is "Talbot's iodo-glycerol", the chief active principle of which is zinc iodide. Probably the most important factor in treatment is instruction in the proper use of the tooth-brush carefully given by the dentist to the patient. Very few people use a tooth-brush correctly unless they are taught.

Atrophic Gingivitis: Physiological Type.

In the physiological type of atrophic gingivitis there is a generalized recession of the gum from the necks of the teeth. It is now realized that from the time teeth first erupt through the gum till old age they slowly but progressively grow further out of their sockets. Also there is progressive loss of alveolar bone surrounding the teeth. This results in a gradual recession of the gum and a gradual lengthening of the clinical crown of the tooth.

There is a presenile atrophy of this type in which quite young people, often in excellent general health, present a similar gingival condition to that of an elderly person.

Treatment.—Gum massage and proper tooth-brush technique may limit the progress of the condition.

Atrophic Gingivitis: Traumatic Type.

Loss of gum tissue may occur as a result of (*a*) pressure from different types of dental appliances, (*b*) faulty methods of cleaning the teeth.

Examples of the former are the atrophy which is produced in the gum against which a partial denture rests, and that which occurs from certain types of orthodontic appliances. Faulty methods of using the tooth-brush and the use of abrasive dentifrices are examples of the latter.

Treatment.—The dentist is often able to correct these faults by improved designing of prosthetic appliances and correction of the technique of oral hygiene.

Hypertrophic Gingivitis.

Hypertrophic gingivitis is commonest in children and young adults, and is characterized by an increase in the fibrous tissue of the gum. Most cases are more a hyperplasia than a true hypertrophy. The ætiology of some of these cases is obscure, but most of them fall into the following groups: (i) Those due to chronic irritation. (ii) Those due to disturbances during the eruption of teeth. (Other forms of gum hypertrophy will be discussed in the section on gingival changes associated with systemic diseases.)

Hypertrophy from Chronic Irritation.—Among the factors producing chronic irritation may be mentioned impaction of food between the teeth, subgingival calculus, malposition of teeth and mouth breathing. Gum hyperplasia may also occur during orthodontic treatment. This is often attributed to the

appliances used, but probably faulty hygiene is the greater factor. Most of these local faults can be corrected by the dental surgeon. Mouth-breathing, of course, is commonly due to nasal or post-nasal obstruction. Great improvement usually follows the removal of adenoids. and the treatment of infective or allergic conditions affecting the nose and nasal sinuses. In some cases mouth-breathing is a habit retained after nasal or post-nasal obstruction has been corrected. In these cases the use of an "oral screen" to enforce nasal breathing gives good results. This is a prosthetic device which is worn over the anterior teeth at night, making mouth-breathing impossible. Before an oral screen is advised, thorough investigation of the patency of the nasal airway is essential.

Hypertrophy from Disturbances during the Eruption of Teeth.—Hypertrophy may result from disturbances during the eruption of teeth. This curious and fortunately uncommon disease has an hereditary basis, but its cause is quite obscure. About the time when the deciduous teeth should be lost and the permanent ones erupt, a great overgrowth of gum tissue occurs. In advanced cases only the tips of some of the teeth are seen and others are completely buried. It may be difficult or impossible for the lips to be closed over the massive gums. The standard method of treatment for these cases is to excise the excess gum tissue and extract all the teeth; sometimes, in addition, some of the alveolar bone is removed. In some cases, however, the permanent teeth may be retained after excision of the gum.

Mycotic Gingivitis (Thrush).

Mycotic gingivitis or thrush occurring in infants and also occasionally in adults suffering from wasting diseases is due to infection of the mouth by certain types of yeast (*Saccharomyces albicans*). In infants the organisms are generally introduced by dirty feeding bottles. With improved methods of infant feeding the disease has become rare in this country.

The gums as well as other parts of the oral mucosa present large white areas somewhat resembling the lesions of diphtheria.

Treatment.—The disease readily responds to hygienic measures, especially the sterilization of feeding bottles. The lesions themselves should be painted with a mild alkaline lotion or a dye such as 1% gentian violet in aqueous solution.

Ulcerative Gingivitis (Necrotic Gingivitis, Vincent's Infection).

In a healthy community living a normal life ulcerative gingivitis is not a common disease, but it occurs in epidemic form among children and adults who are not receiving a normal diet, especially if living in crowded unhygienic conditions. Thus it was common in World War I under the name of "trench mouth", and it was also widespread in the concentration camps of World War II.

Clinical Features.—It occurs in two forms: (*a*) acute, (*b*) chronic. The acute form commences as an ulcer, generally on one of the interdental papillæ. From here it spreads a varying distance around the gum margin, sometimes healing in some areas and breaking out in others. From the gum margin it may spread to invade the rest of the gum, the cheek, the tonsils *et cetera*, but it often remains curiously confined to the gum edge. The affected areas have a dirty white or greyish appearance. There may or may not be an elevation of temperature. Even in the acute form the patient may not be greatly distressed, but in some cases there is considerable malaise and the patient may suffer from pain and severe gastric symptoms. The tongue is usually coated and a characteristic fœtid odour is noticed in all acute cases and may be an important diagnostic sign. The chronic form of Vincent's infection is often overlooked or wrongly diagnosed as *"pyorrhœa alveolaris"*. Often the infected areas are small and may be confined to one or two "pockets" between the gum and one or more teeth. A favourite location is under the flap of gum which often covers part of the occlusal surface of an incompletely erupted third molar tooth.

Bacteriology.—The symbiotic presence of *Bacillus fusiformis* and Vincent's spirillum is so constant in the acute stages that smears from the lesions which contain large numbers of these organisms are considered as diagnostic proof of the disease. However, many writers have denied their role as the causative organisms and regard them as secondary invaders. In the chronic form of the disease the bacteriological picture may not be so characteristic. The morphology of the two organisms changes, and many other common mouth organisms invade the zone of the disease. The contagiousness of the disease has also been disputed, but there have been many instances of its occurrence in several members of a family, and its spread among people living in crowded unsanitary conditions cannot be denied.

Treatment.—The patient should be warned of the possibility of spread by close contact, such as kissing, and his eating utensils should be kept separate from others. In normal times Vincent's infection is not usually difficult to treat. In some cases there will be need for better food and improved hygiene. Local applications which have been successfully used to destroy the organisms and heal the lesions are numerous. *Liquor Arsenicalis* (a 1% solution of arsenic trioxide neutralized with potassium bicarbonate) has been used for many years. It may be applied locally to the ulcers or, suitably diluted, may be used as a mouth-wash. Chromic acid in 5% to 10% aqueous solution applied to the ulcerated gums is an excellent remedy. Oxidizing agents, such as hydrogen peroxide or sodium perborate, have their place in the treatment. The aniline dyes have also been used extensively.

There appears to be no justification at all for the injection of neoarsphenamine, as has been recommended by some writers. Its effectiveness is very doubtful.

The most recently used remedy is penicillin. The organisms are penicillin-sensitive, and the local application in the form of lozenges or as a cream has been claimed by various writers as being very effective. However, not all practitioners who have used it are enthusiastic, and some mouths are irritated by penicillin used locally. Intramuscular penicillin therapy should be used for acute cases with severe symptoms, but its routine use for all cases, most of which can be easily cured by local measures, is to be strongly condemned.

No surgical procedures of any description should be carried out in the mouth during the acute phase. In the chronic form of the disease any gum flaps or "pockets" should be excised after some preliminary local treatment.

Periodontal Disease.

Periodontal disease (*"pyorrhœa alveolaris"*, *pyorrhœa gingivæ*), is a universal disease which has been a scourge of mankind from the dim ages of antiquity. The term *"pyorrhœa alveolaris"* suggests that the pus is derived from the destruction of the alveolar bone. Later investigation has shown that this is not the case. The earliest lesion in most cases is a marginal gingivitis. The infection then spreads into the gingival crevice, the epithelium of which becomes ulcerated with the production of pus. One of the workers whose investigations disclosed these facts was J. M. Lewis, of Melbourne, who suggested that the disease should be known as *pyorrhœa gingivæ*. This is a more satisfactory name than any of the others which have been used. The infection subsequently destroys the periodontal membrane and the alveolar bone surrounding the tooth roots.

Clinical Features.—The clinical features vary greatly. As already indicated, the initial signs and symptoms are those of marginal gingivitis, and at this stage pus is either absent or present in small quantities. When the chronic suppurative stage is reached the clinical picture changes. The gums are now usually soft and either reddened or of an unhealthy bluish colour. Salivary calculus collects in the gingival crevice, and if not removed gradually spreads over the surfaces of the teeth. If it is neglected, very large masses of calculus may form. On palpation of the gums pus is usually seen to exude from the gum edge. In a small proportion of cases there is no visible pus, but smears taken from the gum and examined under the microscope will be found to contain pus cells. The teeth may move their position as the disease destroys the periodontal membrane and the alveolar bone, and finally the teeth loosen and may be exfoliated. Pain is not usually a feature until the late stages. A characteristic offensive breath is a constant late symptom.

Treatment.—Treatment of this disease is essentially the province of the dental profession. Most cases can be conservatively treated if taken early. Extraction of the teeth involved is the only treatment for advanced cases. Unfortunately many of the lay public are apathetic or are unaware that "pyorrhœa" can be successfully treated with preservation of the teeth. Equally unfortunately, many dentists are not interested in treating the disease except with forceps.

Neoplasms.

Excluding the growths known as epulides, neoplasms of the gums are not common. Epulides are tumours, usually pedunculated, which appear to arise from the gingival tissues, but which really spring from the periodontal membrane. A number of different histological types have been described; some of these are very rare, and the commonest are fibrous epulis, fibro-hæmangiomatous epulis and benign giant-celled epulis.

Some authorities regard at least some of the epulides as being of inflammatory origin rather than truly neoplastic.

Treatment.—An epulis should be excised wide of its base, so that the area of periodontal membrane from which it originated is included. This usually necessitates the excision of part of the adjacent bone, and in some cases the removal of one or more teeth.

Other tumours of the gums are rare. Sometimes malignant neoplasms arising from adjacent structures invade the gums. An epithelioma may arise primarily from the irritated edge of gum in contact with a carious cavity, usually in a molar tooth. It is important to submit to biopsy any doubtful lesions in this situation, as in their early stages these growths have been mistaken for chronic inflammatory swellings.

Gingival Changes Associated with Systemic Diseases.

Gingival changes may be associated with exanthematous fevers, infective ulcerations, blood diseases, deficiency diseases, metallic poisons and a group of miscellaneous diseases.

Exanthematous Fevers.

In diseases characterized by high temperatures there is a diminution of salivary secretion. This, combined with the tendency to mouth-breathing, causes the oral mucous membrane to dry and desquamate. Because the patient is commonly given a diet of soft, easily swallowed food, mastication is not vigorous. The result is that desquamated epithelium combined with food debris collects around the teeth and gums; this is often referred to as "sordes". If it is allowed to remain it may cause progressive inflammatory changes in the gingival tissues and periodontal membrane.

In some of these diseases the characteristic rash appears on the mucous membrane of the mouth at the same time as it is found on the skin, although its appearance is modified by the difference in its environment.

Treatment.—Modern treatment has considerably reduced the duration of most of these diseases. There is need, however, for attention to oral hygiene during the course of these and other diseases requiring long periods of rest in bed. If the patient is too ill to use a toothbrush, the local application of a preparation such as triple dye will do much to limit the harmful effects of the disease on the gums.

Infective Ulcerations of the Gums.

Dyspeptic Ulcers.—So-called "dyspeptic" ulcers have nothing to do with faulty digestion but are almost certainly herpetiform in nature; they are sometimes accompanied by herpes of the lip. They occur on other mucous surfaces of the mouth in addition to that of the gums. They may be single, but are more frequently multiple. They have a raised yellow or reddish yellow base and are surrounded by a bright red inflamed area. They may be extremely painful, as the inflammatory changes extend deeply. For treatment, in mild cases the application to the ulcers of borax in glycerine is sufficient. In more severe cases the application of chromic acid 5% to 10% solution as a paint, or a 2·5% aqueous solution used as a mouth-wash, is one of the best methods of treatment.

Specific Ulcers.—Ulceration may be due to syphilis or tuberculosis.

Syphilis: Syphilitic lesions of primary, secondary and tertiary stages have been reported in the past as affecting the gums. Primary lesions have always been very rare in this situation, and tertiary lesions have become rare under modern methods of treatment. Secondary lesions affecting the gums as well as other parts of the mouth are still seen occasionally. These are of two types: (*a*) Mucous patches, which are not a true ulceration in many cases unless irritated from carious teeth or pyogenic infection of the gums. (*b*) Moist papules, which break down and form "snail-track" ulcers.

Tuberculosis: A low-grade type of ulceration affecting the mucous membrane of the mouth is occasionally seen as a late complication of laryngeal or pulmonary tuberculosis. The commonest positions are the tongue or cheek, but occasionally the gums are involved.

Blood Diseases.

Hypochromic Anæmias.—The physician of former years often made a positive diagnosis of anæmia on the pallor of the conjunctiva, gums and oral mucosa generally. In addition to pallor the gums undergo a certain amount of wasting and lack of tone, and this is often accompanied by a curious thickening of the gum margin.

Hyperchromic Anæmias.—With hyperchromic anæmias the gums are commonly, though not always, pale and bloodless, and subject to atrophic changes.

Leuchæmia.—In both the acute and chronic forms of leuchæmia the gums are frequently affected, and in some cases the mouth symptoms have been responsible for the patient's first seeking advice. With myeloid leuchæmia the gum papillæ become enlarged, chiefly in the front of the mouth; they are sometimes purple in colour, sometimes almost black. Bleeding and ulceration often occur. The gums are commonly the first of the oral structures to be affected, but later the disease spreads to other mucous surfaces of the mouth and throat. With lymphatic leuchæmia the gum tissue usually becomes hypertrophied, so that the teeth may be almost hidden. There is sometimes spontaneous hæmorrhage from the gum.

Deficiency Diseases.

Deficiency diseases are not common in this country.

Scurvy.—With scurvy there is a gradually developing sore mouth, and the gums may become so swollen and engorged as to cover the teeth entirely. The hyperplasia affects the whole of the gum, but the most pronounced swelling is of the first five millimetres or so from the gum margin. The gums bleed very easily, and there is considerable fœtor; at times serious spontaneous hæmorrhages occur. The teeth loosen and may be exfoliated.

Beriberi.—With beriberi mouth lesions are not characteristic, but swelling of the gums and a general mouth condition not unlike that of scurvy, but less severe, may occur.

Rickets.—With rickets there is a tendency to catarrhal inflammation of mucous membranes. The disease usually commences before the eruption of the deciduous teeth. It leads to considerable irritation, inflammation and sometimes hæmorrhage of the gums as the teeth erupt. If the teeth have erupted, the gum surrounding them is irritated and inflamed.

Metallic Poisons.

Absorption into the system of salts of certain heavy metals causes changes in the gums.

Lead and Bismuth.—With lead and bismuth the gum changes are not strictly a disease process, but are due to the deposition of sulphides of the metals along the gum line. A bluish or bluish-black line varying in width and density occurs along the gum following the line of the teeth. These changes occur in persons exposed to these metals in the course of their occupation or to the medicinal use of bismuth, as may occur when large quantities of bismuth-iodoform-paraffin paste (B.I.P.P.) are used in surgery. The general symptoms of bismuth poisoning are much less severe than those of lead, but a greater degree of pigmentation occurs with bismuth absorption. The condition is never seen in clean or edentulous mouths, and it is thought that the gum changes are due to the formation of sulphides formed by contact of the metallic salts with hydrogen sulphide set free by decomposing food debris along the gum margin.

Mercury.—The gingivitis produced by salts of mercury may be either occupational or due to medication. The gums become tender, soft and flabby; they are bluish in colour from venous stasis and bleed easily. Ulceration and sloughing may occur, and the teeth may become loose.

Treatment.—In all cases exposure to these metals should be discontinued when symptoms are observed. The desirability of oral hygiene for persons exposed to these metals by their occupation is obvious. When oral symptoms are established the careful removal of calculus and extraction of any loose teeth should be carried out. In the case of mercurial gingivitis the use of potassium chloride or potassium sulphate in 2·5% solution as a mouth-wash is advocated.

Miscellaneous Diseases.

Diabetes.—The initial oral lesion of diabetes appears to be alveolar resorption and gingival recession. In untreated or inadequately controlled diabetes the gums may be inflamed, and sometimes a discharge of thick pus may be seen around the necks of the teeth.

Uræmia.—In uræmia the gums are inflamed and tend to bleed. Ulceration may occur.

Epilepsy.—The hyperplasia of the gum observed in epilepsy is now considered to be due to the use of "Dilantin Sodium" in its treatment.

Paget's Disease.—When Paget's disease affects the maxilla the gums appear to be grossly thickened, so that the lips may not easily be closed. While this thickening is chiefly due to bony changes, there is also some degree of gum hyperplasia.

Pregnancy.—In some pregnant women hyperplasia of the gum occurs, commencing about the third month and usually lasting until a month or two after delivery. The initial change is commonly a marginal gingivitis in the labial region of the anterior teeth. If untreated the gums increase in size, sometimes almost covering the teeth. The gum tissue is usually bluish-red and bleeds easily. Some areas may proliferate, forming one type of epulis, which is known as a "pregnancy tumour" or "pregnancy epulis". These, though almost certainly not neoplastic, bear strong histological resemblance to fibro-hæmangiomata. The gingivitis should receive early careful prophylactic attention from a dental surgeon. Hydrogen peroxide, one part in four of warm water, seems to be the best mouth-wash in these cases. Pregnancy "tumours" often require excision because of their interference with mastication and tendency to bleed. If not removed they shrink to a small size after the termination of pregnancy, but are liable to recur with future pregnancies.

W. E. FLEMING,
Melbourne.

British Medical Association News.

ANNUAL MEETING.

THE annual meeting of the Victorian Branch of the British Medical Association and of the Medical Society of Victoria was held at the Medical Society Hall, Albert Street, East Melbourne, on December 3, 1952, DR. CHARLES BYRNE, the President, in the chair.

ELECTION OF OFFICE-BEARERS AND MEMBERS OF COUNCIL.

The Medical Secretary announced that the Council had elected the following office-bearers:

President: Dr. L. H. Ball.

Vice-Presidents: Dr. G. R. Weigall and Dr. H. G. Furnell.

Chairman of Council: Dr. H. C. Colville.

Honorary Treasurer: Dr. D. J. Thomas.

Honorary Secretary: Dr. H. G. Hiller.

Honorary Librarian: Dr. J. G. Johnson.

The Medical Secretary announced that the following had been elected members of the Council by the general body of members: Dr. C. Byrne, Dr. V. L. Collins, Dr. H. G. Furnell, Dr. K. H. Hallam, Dr. H. G. Hiller, Sir Victor Hurley, Dr. H. M. James, Dr. L. W. Johnston, Dr. M. O. Kent Hughes, Dr. J. H. Lindell, Professor P. MacCallum, Major-General F. K. Norris, Dr. B. K. Rank, Dr. Robert Southby.

The Medical Secretary announced that the following had been elected members of the Council by the subdivisions: Dr. W. R. Angus, Dr. L. H. Ball, Dr. M. H. Box, Dr. D. D. Browne, Dr. D. A. Carter, Dr. W. J. Flanagan, Dr. P. Goodman, Dr. A. B. Hewitt, Dr. J. G. Johnson, Dr. H. G. Judkins, Dr. A. B. McCutcheon, Dr. D. G. MacKellar, Dr. L. A. Neal, Dr. Donald Pryde, Dr. C. A. M. Renou, Dr. M. Robinson, Dr. T. G. Swinburne, Dr. G. R. Weigall.

The Medical Secretary announced that the ex-officio members of the Council were: Dr. H. C. Colville, Dr. F. L. Davies, Sir John Newman Morris, Dr. D. Roseby, Dr. D. J. Thomas (trustees of the Medical Society of Victoria); Dr. J. P. Major (director of the Australasian Medical Publishing Company, Limited).

The representative of the Victorian Medical Women's Society was Dr. Elizabeth McComas.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council which had been circulated among members was received and adopted on the motion of Sir Victor Hurley, seconded by Dr. J. P. Major. The report is as follows.

The Council of the Branch and the Committee of the Society present the seventy-third annual report of the Branch and the ninety-seventh of the Society.

Election.

At the annual meeting held last December the following members of the Council and of the Committee were elected: Dr. A. Brown, Dr. C. Byrne, Dr. H. G. Furnell, Dr. K. H. Hallam, Sir Victor Hurley, Dr. H. M. James, Dr. L. W. Johnston, Dr. M. O. Kent-Hughes, Dr. J. H. Lindell, Professor P. MacCallum, Dr. A. H. Melville, Major-General F. Kingsley Norris, Dr. B. K. Rank and Dr. R. Southby.

In October Council elected Dr. Kevin Brennan to the vacancy created by the death of Dr. Roy Watson.

The following were elected to represent the subdivisions: Dr. W. R. Angus, Dr. L. H. Ball, Dr. M. H. Box, Dr. D. D. Browne, Dr. D. A. Carter, Dr. W. J. Flanagan, Dr. P. Goodman, Dr. A. B. Hewitt, Dr. J. G. Johnson, Dr. H. G. Judkins, Dr. A. McCutcheon, Dr. D. G. MacKellar, Dr. L. A. Neal, Dr. Donald Pryde, Dr. C. A. M. Renou, Dr. W. A. Sloss, Dr. T. G. Swinburne, Dr. G. R. Weigall.

Under Rule 9 of the Branch, Council elected Dr. Elizabeth McComas, who was nominated by the Victorian Medical Women's Society.

The following are ex-officio members: the trustees of the Medical Society of Victoria, Dr. H. C. Colville, Dr. F. L. Davies, Sir John Newman-Morris, Dr. D. Roseby and Dr. D. J. Thomas, and the director for Victoria of the Australasian Medical Publishing Company, Limited, Dr. J. P. Major.

Cooption: Dr. H. G. Hiller, Dr. J. G. Hurley and Dr. R. F. Watson[1] were coopted members of the Council.

The Council elected the following office-bearers: *President*, Dr. Charles Byrne; *Vice-Presidents*, Dr. L. H. Ball and Dr. G. R. Weigall; *Chairman of Council*, Dr. H. C. Colville; *Honorary Treasurer*, Dr. Douglas Thomas; *Honorary Librarian*, Dr. H. G. Furnell; *Honorary Secretary*, Dr. H. G. Hiller.

The executive consisted of the president, the immediate past president, Dr. R. F. Watson,[1] and other office-bearers.

Attendances at Council Meetings.

Eleven meetings of the Branch Council were held, the following showing the attendances:

Dr. M. H. Box	11	Dr. J. G. Hurley	7
Dr. J. Gavin Johnson	11	Professor P. MacCallum	7
Dr. D. Pryde	11	Dr. E. McComas[3]	7
Dr. R. Southby	11	Dr. J. P. Major	6
Dr. H. C. Colville	10	Major-General F. K. Norris[4]	6
Dr. F. L. Davies	10	Dr. B. K. Rank	6
Dr. K. H. Hallam	10	Dr. A. E. Brown	5
Dr. H. G. Hiller	10	Dr. P. Goodman	5
Dr. H. M. James	10	Dr. A. B. Hewitt	5
Dr. D. Roseby	10	Dr. J. H. Lindell	5
Dr. T. G. Swinburne	10	Dr. Douglas J. Thomas	5
Dr. G. R. Weigall	10	Dr. H. G. Furnell	4
Dr. C. Byrne	9	Dr. A. H. Melville	4
Dr. M. O. Kent-Hughes	9	Dr. W. A. Sloss	4
Sir Victor Hurley	9	Dr. D. D. Browne	3
Dr. A. B. McCutcheon	9	Dr. D. G. MacKellar	3
Dr. C. A. M. Renou	9	Dr. W. J. Flanagan[3]	3
Dr. L. W. Johnston	8	Dr. L. A. Neal[3]	2
Dr. H. G. Judkins	8	Dr. R. Watson[5]	2
Sir John Newman-Morris	8	Dr. W. R. Angus	1
Dr. L. H. Ball[3]	7	Dr. K. Brennan[4]	1
Dr. D. A. Carter	7		

The highest attendance at any one meeting was 28, and the average attendance was 27.

Appointment of Subcommittees.

The following subcommittees were appointed by Council at the beginning of the year (the first named acting as convener of the subcommittee):

Ethics.—Dr. Major, Dr. Davies, Sir John Newman-Morris, Dr. McCutcheon and the executive.

Finance, House and Library.—Dr. Thomas, Dr. Ball, Dr. Furnell, Major-General Norris.

Legislative.—Dr. Davies, Dr. Colville, Dr. Rank, Dr. Renou, Dr. Watson.

Organization.—Dr. Swinburne, Dr. Ball, Dr. Box, Dr. A. E. Brown, Dr. Byrne, Dr. Colville, Dr. Furnell, Sir Victor Hurley, Dr. J. G. Johnson, Dr. Judkins, Dr. L. W. Johnston, Dr. Kent-Hughes, Dr. McComas, Dr. McCutcheon, Dr. Neal, Dr. Pryde, Dr. Rank, Dr. Renou, Dr. Roseby, Dr. Southby, Dr. Weigall, and representatives of the country subdivisions.

[1] Died during the year.
[2] Represented by substitute at one meeting.
[3] Granted leave of absence during the year.
[4] Elected in October.
[5] Died during the year.

Science.—Professor MacCallum, Dr. Hallam, Dr. L. W. Johnston, Dr. Lindell, Major-General Norris, Dr. Watson.

Hospital.—Dr. Southby, Dr. Ball, Dr. Colville, Dr. Hallam, Sir Victor Hurley, Dr. J. G. Hurley, Dr. James, Dr. Lindell, Dr. Melville, Dr. Neal, Dr. Watson, Dr. Weigall, Dr. Kent-Hughes.

Correspondence.—Dr. Colville, Dr. Hiller.

Workers' Compensation.—Dr. Ball, Dr. Byrne, Dr. Colville, Dr. Kent-Hughes, Dr. Rank, Dr. Renou, Dr. Roseby.

Publicity.—Dr. Ball, Dr. Byrne, Dr. Swinburne, Dr. Thomas, Medical Secretary.

Building Committee.—The President, Honorary Treasurer, Honorary Secretary, Dr. Coates.

Social.—Dr. Roseby, Dr. Swinburne, Dr. Weigall.

Appointments and Nominations.

Medico-Pharmaceutical Liaison Committee.—Dr. Roseby, Dr. Byron Stanton, Dr. Thomas, the President (*ex officio*) and the Medical Secretary.

Trustees of the Medical Society of Victoria.—Dr. H. C. Colville, Dr. F. L. Davies, Sir John Newman-Morris, Dr. D. Roseby and Dr. D. J. Thomas.

Central Council, British Medical Association.—Dr. M. L. Formby.

Federal Council.—Dr. Charles Byrne, Dr. H. C. Colville and Dr. Robert Southby.

British Medical Agency.—Dr. C. H. Dickson, Major-General F. Kingsley Norris, Dr. G. Robinson and Dr. D. J. Thomas.

British Medical Insurance Company of Victoria, Limited.—Directors: Sir John Newman-Morris (chairman), Dr. C. H. Dickson, Dr. H. G. Furnell, Sir Victor Hurley, Dr. W. W. S. Johnston and Major-General F. Kingsley Norris.

Victorian Correspondent, "The Medical Journal of Australia".—Dr. H. G. Hiller.

Victorian Correspondent, "British Medical Journal".—Dr. H. G. Hiller.

Victorian Bush Nursing Association.—Dr. Elizabeth McComas.

Hospital Benefits Association.—Dr. C. H. Dickson, Major-General F. Kingsley Norris, Dr. D. Roseby and Dr. G. R. Weigall.

Electoral Board, Medical Staffing of Base Hospitals.—Dr. J. P. Major, Major-General F. Kingsley Norris.

Medical Eye Service of Victoria.—Dr. R. Stott.

Free Kindergarten Union.—Dr. H. Boyd Graham.

Victorian Baby Health Centres' Association.—Dr. M. L. Powell.

Lord Mayor's Fund.—Sir John Newman-Morris.

Melbourne Permanent Post-Graduate Committee.—Professor P. MacCallum, Dr. J. P. Major and Dr. G. R. Weigall.

Medical Officers' Relief Fund (Federal).—Advisory Committee: Dr. F. L. Davies, Dr. D. J. Thomas and Dr. W. G. D. Uujohn.

Federal Medical War Relief Fund.—Advisory Committee: Dr. F. L. Davies, Dr. D. J. Thomas and Dr. W. G. D. Upjohn.

Services Recognition Fund (formerly Legacy Fund).—Dr. A. E. Coates, Major-General F. Kingsley Norris and Dr. D. J. Thomas.

Australian Aerial Medical Service.—Sir John Newman-Morris.

Nurses' Board.—Dr. W. M. Lemmon and Dr. Alwynne Rowlands.

Dietetic Association of Victoria.—Dr. T. A. F. Heale.

Consultative Council on Maternal Mortality.—Dr. J. G. Johnson.

World Medical Association, Supporting Committee (Victoria).—Dr. D. Roseby, Dr. K. H. Hallam and Professor Peter MacCallum.

The Occupational Therapy School of Victoria.—Dr. D. O. Longmuir.

Committee of Lord Mayor's Country Children's Holiday Camp.—Dr. Gwynne Villiers.

Society for Crippled Children.—Dr. H. Boyd Graham.

State Medical Planning Committee.—Dr. H. G. Furnell.

Consultative Council on Influenza.—Dr. K. D. Fairley.

Anti-Cancer Council of Victoria.—Dr. J. E. Clarke and Dr. H. Searby.

Opticians' Registration Board.—Dr. F. G. Fenton and Dr. S. R. Gerstman.

National Safety Council of Australia.—Dr. John Gowland.

Masseurs' Registration Board.—Dr. C. Hembrow and Dr. Leigh Wedlick.

Joint Insurance Adjudication Committee.—Dr. L. H. Ball, Dr. D. Roseby and Dr. W. G. D. Upjohn.

National Committee of British Commonwealth Collection of Microorganisms.—Professor S. D. Rubbo.

Victorian Council of Speech Therapy.—Dr. R. Southby.

Annual Representative Meeting, British Medical Association, Dublin, 1952.—Representative, Dr. Leo Neal; Deputy Representative, Dr. G. E. Foreman.

Medical Advisory Committee, Hospitals and Charities Commission.—Dr. A. B. McCutcheon and Dr. R. Southby.

Rotary Club (Citizens' Committee).—Dr. R. Southby.

Australian and New Zealand Association for the Advancement of Science: Twenty-Ninth Meeting, Sydney, 1952.—Professor P. MacCallum.

Standards Association of Australia (Victorian Division): Committee on Hospital Furnishings and Equipment.—Dr. J. H. Lindell.

Victorian Documentary Film Council, Advisory Committee on Scientific Films.—Dr. R. S. Hooper and Dr. Morris Davis.

Consultative Council on Quarantinable Diseases.—Dr. P. Gilbert.

Conjoint Committee with the Friendly Societies Association of Victoria.—Dr. Charles Byrne, Dr. J. G. Johnson and Dr. C. H. Dickson.

Standards Association of Australia.—Dr. D. O. Shiels.

Advisory Subcommittee to the Red Cross Blood Transfusion Service.—Dr. Charles Byrne.

Branch Convocation.

The following were elected for the year 1952. *Melbourne Central*: Dr. T. Ackland, Dr. C. J. O. Brown, Dr. J. E. Clarke, Dr. E. E. Dunlop, Dr. C. H. Fitts, Dr. H. B. Graham, Dr. R. Lawson, Dr. K. Mackay, Dr. J. O'Sullivan, Dr. G. Penington, Dr. S. Reid, Dr. J. E. Sewell, Dr. G. Springthorpe, Dr. M. Tallent. *Western Suburban*: Dr. L. Gurry, Dr. L. Joel, Dr. E. F. J. Smith. *South-Eastern Suburban*: Dr. V. C. Brown, Dr. C. C. Dyte, Dr. B. D. Fethers, Dr. G. Foreman, Dr. E. Kirsner, Dr. G. L. Lillies, Dr. L. Nicholson, Dr. G. W. Patterson, Dr. R. M. Shaw. *Eastern Suburban*: Dr. J. D. Begg, Dr. W. L. Carrington, Dr. P. G. Commons, Dr. A. S. Ferguson, Dr. W. E. Hewitt, Dr. H. J. Hosking, Dr. E. E. Mackay, Dr. J. G. McMahon, Dr. R. H. Stevens, Dr. G. Watters. *North-Eastern Suburban*: Dr. M. Ashkenasy, Dr. J. Cockerill, Dr. W. Heslop. *Northern Suburban*: Dr. J. E. Dunn, Dr. S. L. Fredman, Dr. D. C. Lear, Dr. J. O'Keefe, Dr. K. Ratten, Dr. A. Wilson. *Southern Suburban*: Dr. A. L. Giblin, Dr. L. Middleton, Dr. T. O. Sayle, Dr. H. F. Tucker, Dr. C. Turner, Dr. D. Zacharin. *South Central Suburban*: Dr. R. D. Aitchison, Dr. D. Bodycomb, Dr. M. M. Perl, Dr. J. Smibert, Dr. A. McQ. Thomson, Dr. Chas. Wilson. *Ballarat*: Dr. M. H. Robinson, Dr. E. R. G. Sheil. *Bendigo*: Dr. M. Jacobs, Dr. A. Newson, Dr. W. Rosenthal. *Geelong*: Dr. R. L. Fulton, Dr. D. A. Kidd. *Goulburn*: Dr. J. B. McMiken. *Gippsland*: Dr. J. M. Andrew, Dr. W. Ferguson, Dr. D. I. Fitzpatrick. *North-East Country*: Dr. W. Gove, Dr. H. Marks. *North-West Country*: Dr. S. Rabl, Dr. J. J. Searby. *South-West Country*: Dr. C. E. Sawrey, Dr. G. D. Watson.

Membership Roll.

The number of members on the roll at October 22, 1952, was 2377, which was 126 more than last year. Two hundred and sixty-two members were added (154 by election, 33 were reinstated by payment of arrears, and 75 were transferred from other States and overseas); and 136 names were removed (17 by death, 59 by transfer, 18 by resignation, and 42 allowed their subscriptions to fall into arrears).

Honorary Medical Members number 34, and there are two Complimentary Members.

Honorary Student Associates number 48.

Election of a Complimentary Member.

In appreciation of services rendered to medical research and radiology, the Council elected Mr. Edgar Rouse, of Kodak (Australasia) Proprietary, Limited, a Complimentary Member of the Branch.

Deceased.

The death of the following members and former members is recorded with regret: Dr. K. G. Aberdeen, Dr. F. J. Bennett, Dr. J. J. Black, Dr. Stanley Boan, Dr. J. S. Buchanan, Dr. James Calhoun, Dr. M. W. Cave, Dr. Kathleen Daly, Dr. George A. Eadie, Dr. Eric Ettelson, Dr. Colin Gray, Dr. J. Horgan, Dr. I. Huppert, Dr. B. C. Joel, Dr. W. B. Kirkland, Dr. J. J. Kitchen, Dr. V. J. Mankey, Dr. M. May, Dr. F. Niall, Dr. Elizabeth O'Keefe, Dr. J. F. Patrick, Dr. N. Prichard, Dr. George Reid, Dr. A. S. Robertson, Dr. H. Douglas Stephens, Dr. B. M. Sutherland, Dr. Roy Watson.

After the death of Dr. B. M. Sutherland in October, 1951, the Branch Council recorded the following special minute:

> The Conncil of the Victorian Branch of the British Medical Association records with regret the death of Bertram Milne Sutherland, O.B.E., M.B., Ch.B., F.R.A.C.S., F.R.C.O.G., who, as a member of the Branch Council from 1912 to 1914 and from 1921 to 1939, as President of the Branch in 1932, as one who served in the war of 1914-1918, as President of the Victorian Bush Nursing Association, and as a leader in his specialty of obstetrics and gynæcology, rendered great service to his colleagues and to the community. The Council conveys its sympathy to the mother and sisters of the late Dr. Sutherland.

After the death of Dr. H. Douglas Stephens in June, 1952, the Branch Council recorded the following special minute:

> The Council of the Victorian Branch of the British Medical Association records with regret the death of Henry Douglas Stephens, M.D., M.S., F.R.A.C.S., F.A.C.S., who, as a pædiatrician for over fifty years, devoted his life to the welfare of children, and served the Children's Hospital from 1901 until his death. His capacity for service was immense, and was demonstrated in the offices he held at the Children's Hospital, and as Lecturer in Diseases of Children in the University of Melbourne, President of the Victorian Branch of the British Medical Association, 1926, President of the Section of Pædiatrics, Australasian Medical Congress, 1937, Chairman of the Melbourne Permanent Post-Graduate Committee, 1945, and first President of the Australian Pædiatric Association in 1950. The Council extends its sympathy to Mrs. Stephens and her family.

After the death of Dr. Roy F. Watson in July, 1952, the Branch Council recorded the following special minute:

> The Council of the Victorian Branch of the British Medical Association records with regret the death of Roy Fallowes Watson, M.D. *et* Ch.B., who, as a member of Council from 1942 until his death, during which period he was Honorary Secretary of the Branch from 1944 to 1948 and President in 1951, served the profession and the community with untiring unselfishness and earned the respect and affection of his colleagues. He will also be remembered by his work as a clinical pathologist, a branch of medicine to which he contributed largely during the whole of his medical career. The Council extends its sympathy to Mrs. Watson and the members of his family.

Congratulations.

During the year the Council had pleasure in congratulating the following: Sir Macfarlane Burnet as recipient of a Lasker Award (of the American Medical Association) for 1952 for his work in the field of virus infection; Dr. K. M. Bowden on having been awarded a Commonwealth Literary Prize; Sir Samuel Burston on having been created a Knight Commander of the Order of the British Empire, Military; Dr. John Catarinich, C.M.G., and Brigadier C. W. Nye, O.B.E., E.D., as recipients of honours conferred upon them by His Majesty King George VI; Air Vice-Marshal E. A. Daley, C.B.E., on his promotion, on his appointment as Honorary Physician to the Queen, and on having an honour conferred upon him by His Majesty King George VI; Dr. H. M. Hewlett on having his name inscribed on a Roll of Radiological Pioneers to be placed in the Hall of the Antoine Beclère Foundation for Radiology in Paris; Professor Peter MacCallum on his appointment as National Chairman of the Australian Red Cross Society; Sir Hugh Poate on having an honour conferred upon him by Her Majesty the Queen; Rear-Admiral D. A. Pritchard, C.B.E., on his promotion and on the honour conferred on him by Her Majesty the Queen; and Group Captain Henry Searby on his appointment as Honorary Surgeon to Her Majesty the Queen.

Church Services.

The third annual church services for the medical profession were held on Sunday, February 10, 1952. Members of the profession assembled in the precincts of St. Paul's Cathedral and St. Patrick's Cathedral and entered in procession. At St. Paul's Cathedral the preacher was the Archbishop of Melbourne (the Most Reverend J. J. Booth, D.D.), and at St. Patrick's Cathedral the celebrant and preacher was the Reverend Father Robert Peterson, S.J. The services were well attended.

The Australasian Medical Congress (Eighth Session), Melbourne, August 22-29, 1952.

Including honorary members, there were 1327 members of the Eighth Session of Congress, with 858 from Victoria. The session was most successful and many congratulatory messages were received by the Executive Committee.

Centenary of Foundation of Victoria Medical Association.

July 19, 1952, marked the passage of 100 years since the Victoria Medical Association, the direct forerunner of the Medical Society of Victoria, adopted its rules and regulations, and from that date, uninterruptedly, scientific and business meetings have been held.

The Stawell Memorial Prize for 1952.

The Stawell Memorial Prize for 1952 was awarded to Dr. E. W. Gault, of the Christian Medical College, Vellore, India, for his essay on "The Problems of Hepatitis".

British Medical Association Annual General Meeting, 1935, Prize.

Following the 103rd annual general meeting of the British Medical Association in Melbourne in 1935, the surplus moneys were set aside to establish a prize fund, the income from the fund to be used for a triennial prize, consisting of a cheque and a medal, to be awarded for that contribution towards the study of problems in the medical and allied sciences adjudged to be of greatest merit. The fund was allowed to accumulate for several years and the first award was made in August, 1952, to Dr. B. P. McCloskey for his work on the relation of prophylactic inoculations to the onset of poliomyelitis. The award was made at the conclusion of the Newland Oration during the Eighth Session of the Australasian Medical Congress, and it has been decided that the prize shall be awarded every three years, at a meeting of Congress.

Crawford Mollison Prize.

To commemorate the great services rendered to medicine in Australia by Dr. Crawford Henry Mollison as a practising pathologist for over fifty years, the Crawford Mollison Prize has been established and will be awarded triennially for the most notable contribution to pathology during that triennial period. The first award was made in August, 1952, to Professor Gordon Cameron (a Melbourne graduate), of University College Hospital, University of London, for his recent book, "The Pathology of the Cell". The award was made at the conclusion of the Newland Oration, and Dr. Leslie Hurley, to whom the book was dedicated, accepted the prize on behalf of Professor Cameron.

Golf.

The thirteenth annual golf tournament of the Branch was held on Thursday, 29th November, 1951, at the Royal Melbourne Golf Club, on the east course at Cheltenham. The Championship Cup (The Weigall Cup) was won by Dr. C. R. Laing, and the Handicap Cup (The Roseby Cup) by Dr. E. W. Field. The spoon competition was won by Dr. H. H. Jackson and Dr. M. L. Powell.

Entertainment.

In December, 1951, the Council entertained at afternoon tea new graduates who had passed their supplementary examinations.

In March, 1952, the Council was pleased to welcome to Australia Dr. E. Cunningham Dax, Chairman of the Mental Hygiene Authority, by entertaining him and members of the authority and senior officers of the Victorian Health Department at a late afternoon party.

The Council entertained members of the Federal Council at lunch in August during the Federal Council meeting held in Melbourne.

Meetings of the Branch.

On account of the activities of the Eighth Session of the Australasian Medical Congress, the programme of meetings of the Branch and clinical meetings was reduced during 1952.

The following meetings of the Branch were held in Melbourne:

March.—A symposium on "The Use of Radioactive Iodine in the Treatment of Thyroid Diseases", conducted by Dr. R. Kaye Scott ("Scope and Uses of Radioactive Iodine"); Mr. K. H. Clarke ("The Physical Aspect of the Subject"); Mrs. D. Winikoss ("The Biochemical Aspect"); Dr. W. E. King ("The Medical Aspect"); and Dr. J. A. Forbes ("The Pathological Aspect").

May.—A symposium on "Standards of Fitness", at which the speakers were Air Vice-Marshal E. A. Daley, Dr. W. W. S. Johnston, Major-General F. Kingsley Norris and Surgeon Rear-Admiral D. A. Pritchard.

October.—The nineteenth Sir Richard Stawell Oration, "The World Food Problem—Technical or Social?", which was delivered by Professor S. M. Wadham, M.A., Dip. Agr., Professor of Agriculture in the University of Melbourne.

November.—An address, "Medical Practice Under the National Health Service Act", by Dr. Denis Brinton, of the National Hospital, Queen Square, London.

The following meeting was held in the country:

March.—Warrnambool. In the afternoon clinical cases were presented at the Base Hospital and in the evening Professor Edgar King delivered a lecture on "The Pathology of Some Common Chest Conditions".

The following clinical meetings and demonstrations were held:

April.—The Women's Hospital.

June.—Saint Vincent's Hospital.

The Branch Council expresses its thanks and appreciation to the committee and office-bearers of the South-Western Country Subdivision for the excellent arrangements made for the conduct of the meeting at Warrnambool and to the wives of members of the subdivision for their kindness and hospitality to visiting members and their wives.

The Council also expresses its appreciation and thanks to the staffs of the Women's Hospital and Saint Vincent's Hospital for arranging very successful clinical meetings during the year.

Armistice Day.

On Friday, November 9, 1952, a short ceremony was held in the foyer of the Medical Society Hall in honour of the Victorian medical officers who lost their lives in the service of the Empire in the wars of 1914-1918 and 1939-1945. The President laid a wreath on the War Memorial following the reading of the names of those doctors who had been killed or died on service.

Business of Council.

Three stages of the plans of Sir Earle Page, Federal Minister for Health, for a national health service are now in operation—the provision of pharmaceutical benefits, the Pensioner Medical Service and a scheme of subsidized hospital benefits—and the Minister proposes to introduce the fourth and final stage, a system of subsidized medical benefits through voluntary organizations, in 1953, and many matters connected with these proposals have been considered by Council during the year.

Owing to increasing management costs and the cost of printing the *British Medical Journal*, it was decided at the Annual Representative Meeting of the British Medical Association that the overseas subscription should be increased to two guineas from January 1, 1953. As the Home Association grants a rebate to overseas Branches and carries the loss on exchange, the Victorian Branch will next year pay a capitation fee of £1 11s. 6d.—an increase of 6s. per member—which will cost the Branch approximately £700 *per annum*.

Under the *Coroner's Act*, a medical officer attached to a hospital and receiving a salary cannot claim fees as a witness in the Coroner's Court, and a country member receiving a small annual honorarium was refused payment of a fee following appearance in a coroner's court. Legal opinion was obtained on the matter, it being considered that receipt of an honorarium was not a disqualification, but attorneys-general for the State of Victoria have for many years ruled otherwise, and representations have been made to the Attorney-General for reconsideration of that ruling.

During the year a pamphlet, "The Obligations of Medical Practitioners Regarding the Furnishing of Evidence and Medical Witnesses' Fees in Victoria", originally issued several years ago, was revised and reissued to members.

In collaboration with Victorian pharmaceutical organizations, "A Guide to the Prescribing and Dispensing of Dangerous Drugs and Specified Drugs" was issued to members.

In view of depreciation in money values and rising overhead costs of medical practice, the opinion of members was sought regarding fees in general practice, and, as a result, early in the year it was recommended to members that the following fees be charged:

	£	s.	d.
Consultations at surgery:			
During normal advertised hours, or between 8 a.m. and 6 p.m.		15	0
After hours	1	0	0
Consultations at home (within two miles):			
8 a.m. to 6 p.m. and until noon on Saturday	1	0	0
During week-ends, holidays and at night ..	1	5	0

Representations were made to the Minister for Health requesting alteration of the regulations under the *Hospitals and Charities Act*, so that medical practitioners by virtue of their medical qualifications might be eligible for appointment as chief executive officers of hospitals.

Objection was taken to the action of the Hospitals and Charities Commission in instructing hospitals to keep operation registers which would be open to inspection by officers of the Commission, it being considered that such inspection should not be made except with the consent of patients.

A request was submitted to the State Health Department for the payment of a fee of one guinea for certificates in relation to persons receiving tuberculosis allowances.

The "fee-for-service" system of friendly society practice which replaced the capitation system in 1951 is working smoothly and any difficulties which have arisen have been dealt with by the Friendly Societies' Consultative Committee.

During the year the attention of members was directed to the rules of the Branch in reference to advertisements of commencement and resumption of practice, as many advertisements were appearing in the Press not in conformity with the rules of the Branch.

Alterations to two rules of the Branch in reference to investment of moneys standing to the credit of the Organization Fund and resignations of members were submitted to and approved by a Branch meeting.

Proposals to impose a limit upon the numbers entering the medical course at the University of Melbourne have been viewed with concern, and a conference has been sought with the Faculty of Medicine on the matter.

During the year Council gave approval to the formation of a Section of Industrial Medicine, which has since been established.

The Medical Society of Victoria owns a considerable amount of valuable historical material, and so that this may be preserved and collated, a museum has been established, Dr. H. Boyd Graham being the first honorary curator.

During the year Council commended to members appeals for funds for the rebuilding of Wilson Hall and the establishment of British Memorial Fund Scholarships, and also invited members to make additional donations to the Federal Medical War Relief Fund.

In the above, reference has not been made to the large volume of business arising from the activities of the Federal Council which was considered by the Branch Council, the ultimate decisions concerning which will be found in the reports of the meetings of the Federal Council in THE MEDICAL JOURNAL OF AUSTRALIA. In addition, many matters were dealt with by the subcommittees and the executive of the Branch Council, and a great deal of time was devoted to the planning of the Eighth Session of the Australasian Medical Congress.

Federal Council.

The Federal Council met in Hobart in February and in Melbourne in August. A report of the proceedings of the first meeting was published in THE MEDICAL JOURNAL OF AUSTRALIA of March 29, 1952, and a report of the proceedings of the August meeting appeared in the issue of September 27.

The Library of the Medical Society of Victoria.

The number of books and journals borrowed during the year—2015—shows a very slight increase on last year's figures. Books added to the library total 91, and subscriptions have been taken out for the Supplements to *Acta Radiologica* and the *British Journal of Ophthalmology*, also the *Australian Journal of Dermatology*. Subscriptions to *Abstracts of World Medicine and Abstracts of World Surgery, Gynæcology and Obstetrics* have been discontinued as the substance of these is contained in other publications.

Advantage continues to be taken of the interstate reciprocity enjoyed by the library for the loan of books and journals available only in other States, and a slightly greater use has been made of the facilities for photograph copies of articles and abstracts.

Following numerous requests, it was decided to open the library on Saturday mornings as from July 5, 1952. There has been less patronage than was anticipated, the number of members using the library at this time varying from none to six.

A request by the General Secretary of "Save the Children Fund" for medical literature for doctors working in Korea was passed on to the Library Subcommittee and authority given for the librarian to make available certain text-books and journals which are held in duplicate.

As in previous years the Library Subcommittee desires to record its appreciation of the generous gifts of money for the purchase of books from the British Medical Insurance Company of Victoria, Limited, and of books and journals from THE MEDICAL JOURNAL OF AUSTRALIA. Others from whom gifts are acknowledged are Dame Jean Macnamara, Dr. I. Younger Ross, the Australian Society of Anæsthetists, United Kingdom Information Office, United States Information Library and the Commonwealth Department of Health.

Members are asked to cooperate with the subcommittee by suggesting ways in which the library service can be improved or extended.

H. G. FURNELL,
Honorary Librarian.

Reports of Subdivisions.

Metropolitan.

Western Suburban.—Office-bearers: Branch Council representative, Dr. M. H. Box; Chairman, Dr. M. H. Box; Honorary Secretary, Dr. Donald D. Coutts.

During the past twelve months there has been no meeting of this subdivision.

DONALD D. COUTTS,
Honorary Secretary.

South Central.—Office-bearers: Branch Council representative, Dr. J. Gavin Johnson; Chairman, Dr. E. A. C. Farran; Honorary Secretary, Dr. J. Gavin Johnson.

No meetings of the subdivision were held during the year.

J. GAVIN JOHNSON,
Honorary Secretary.

Southern Suburban.—Office-bearers: Branch Council representative, Dr. G. R. Weigall; Chairman, Dr. D. Zacharin; Honorary Secretary, Dr. Norman L. Speirs.

At a meeting held on January 9, 1952, when 26 members were present, the office-bearers were elected.

A discussion on fees followed, and it was decided to recommend to Council the following charges: surgery consultation 15s., visit to home £1, night and holiday visits £1 5s. General practitioner charges for other procedures were also discussed, and it was suggested that the minimum anæsthetic fee for short procedures be £2 2s. and that the fee for consultation with another doctor also be £2 2s.

NORMAN L. SPEIRS,
Honorary Secretary.

South-Eastern Suburban.—Office-bearers: Branch Council representative, Dr. Donald Pryde; Chairman, Dr. J. F. Adamson; Honorary Secretary, Dr. G. W. Patterson.

No meetings of the subdivision were held during the year.

G. W. PATTERSON,
Honorary Secretary.

Eastern Suburban.—Office-bearers: Branch Council representative, Dr. K. H. Hallam; Chairman, Dr. R. G. Penington; Honorary Secretary, Dr. H. J. Hosking.

Two meetings were held during the year.

At a meeting on March 18 the office-bearers were elected, and Dr. Graham McKenzie gave an illustrated lecture on "Pathological Conditions of the Hand".

On June 20 Dr. T. H. Steel spoke on "Aspects of Diagnosis and Treatment of Tuberculosis of Interest to General Practitioners", and Dr. C. H. Dickson introduced discussion on several medico-political problems including the question of honorary medical service in public hospitals.

H. J. HOSKING,
Honorary Secretary.

Melbourne Central.—Office-bearers: Branch Council representatives, Dr. L. H. Ball, Dr. C. A. M. Renou and Dr. George Swinburne; Chairman, Dr. A. E. Coates; Honorary Secretary, Dr. George Swinburne.

No meetings of the subdivision were held during the year.

GEORGE SWINBURNE,
Honorary Secretary.

Country.

South-Western Country.—Office-bearers: Branch Council representative, Dr. W. R. Angus; substitute representatives, Dr. L. T. Griffith and Dr. B. S. Alderson; Chairman, Dr. A. E. Brauer; Honorary Secretary, Dr. W. R. Angus; Assistant Honorary Secretary, Dr. B. Vaughan; Committee, Dr. D. I. Fitzpatrick, Dr. H. Maling, Dr. C. B. Berryman, Dr. J. K. Gardner and Dr. B. Vaughan.

Meetings during the year have been fairly well attended, the average number present being 16.

During the year a determined effort has been made to improve the pathological diagnostic services within the subdivision, and a special subcommittee has been set up to prepare a report to be discussed at a special meeting to be called in the near future.

At Hamilton in November, 1951, a successful week-end meeting was arranged and the Post-Graduate Committee supplied lecturers who dealt with the following subjects: "Advances in Anæsthesia", "Management of Œdema", "Surgery of the Biliary Tract" and "Present Trends with Chemotherapy and Antibiotics".

A subdivision library has been formed from which recent periodicals and text-books are available to members of the subdivision. We are grateful for the financial assistance that has been received from the British Medical Insurance Company in this field.

An effort is being made to obtain some uniformity in fees by arranging a scale of intermediate fees for guidance of members within the subdivision.

At the May meeting Dr. Max Biggins delivered a lecture on "Cortisone and ACTH", and at the September meeting Dr. Kennedy Burnside dealt with "Injuries to the Urinary Tract".

A meeting of the Branch was held at Warrnambool on March 29, when clinical cases were shown by local members; cases of tumours of the stomach, hydatid disease, blood diseases and Sjögren's syndrome were discussed.

The chairman, Dr. H. Maling, gave a cocktail party, and after dinner Professor Edgar King delivered a lecture to a representative gathering of members.

At the biennial meeting at Terank the retiring chairman (Dr. H. Maling) referred to the changing times and the need for medical men to interest themselves in the affairs of the Association and attend meetings.

Our new chairman, Dr. A. E. Brauer, also appealed to members to attend meetings regularly.

Throughout the year the meetings have been beneficial from the professional, academic and social aspects.

W. R. ANGUS,
Honorary Secretary.

North-West Country.—Office-bearers: Branch Council representative, Dr. W. J. Flanagan; substitute representatives, Dr. T. V. Walpole and Dr. B. H. Jones; Chairman, Dr. W. J. Flanagan; Honorary Secretary, Dr. A. L. Bridge.

A meeting of the subdivision was held on January 7, 1952. The principal matters of discussion were the scale of fees and the new system of friendly society practice.

A post-graduate meeting was held on October 4 and 5. Excellent talks were given by Dr. A. R. Wakefield, Dr. John McLean and Dr. Mostyn Powell.

Following a circular from the Branch office regarding the proposed payment for service at public hospitals, a con-

sensus showed that the majority was in favour of such payment. At the same time it was felt that the acceptance of any governmental contract could only lead to restriction of liberties.

ALAN BRIDGE,
Honorary Secretary.

Ballarat.—Office-bearers: Branch Council representatives, Dr. W. A. Sloss; substitute representatives, Dr. G. T. James and Dr. M. Robinson; Chairman, Dr. C. C. Richardson; Honorary Secretary, Dr. J. P. L. Griffiths; Honorary Treasurer, Dr. P. G. Smith; Local Council, Dr. E. R. G. Sheil, Dr. W. R. Griffiths, Dr. D. Skewes, Dr. G. Pern and Dr. G. T. James.

J. PHILIP L. GRIFFITHS,
Honorary Secretary.

Gippsland.—Office-bearers: Chairman, Dr. J. M. Andrew; Honorary Secretary, Dr. D. I. Fitzpatrick; Council representative, Dr. A. B. Hewitt; substitute Council representatives, Dr. J. M. Andrew and Dr. D. I. Fitzpatrick.

On January 24 a meeting, at which 15 members were present, was held at Sale to discuss increased fees and honorary service to patients in public hospitals. The abolition of honorary service and the right to charge fees for services were unanimously favoured.

On April 19 and 20 a week-end post-graduate course was held at Sale. Eighteen members attended. Dr. Charles Sutherland spoke on "Asthma and Allied Diseases", Dr. John Colebatch on "Infectious Diarrhœa in Infancy and Childhood", Dr. N. de Garis on "Toxæmias of Pregnancy", and Dr. John Bolton on "Recent Advances in the Management of the Macrocytic Anæmias and of Leuchæmia".

On July 3 a clinical meeting was held at Yallourn. Nineteen members attended. Dr. Norman Harry spoke on "Acute Abdominal Emergencies, Traumatic and General".

DAVID I. FITZPATRICK,
Honorary Secretary.

Bendigo.—Office-bearers: Chairman, Dr. A. L. Newson; Honorary Secretary, Dr. P. E. Breheny; Honorary Treasurer, Dr. H. C. Purton; Council representative, Dr. P. Goodman; substitute representatives, Dr. A. E. Lincoln and Dr. E. Sandner.

During the past year, in May and October, the subdivision held two one-day post-graduate meetings, as it was felt that single-day meetings best suited the needs of the more widely dispersed members of the subdivision.

A dinner was held to entertain the visiting lecturers on each occasion, and at the May meeting dinner was preceded by a cocktail party given by the retiring chairman, Dr. Lincoln.

PETER E. BREHENY,
Honorary Secretary.

Geelong.—Office-bearers: Branch Council representative, Dr. D. A. Carter; substitute representatives, Dr. D. A. Kidd and Dr. N. Laidlaw; Chairman, Dr. K. Langlands; Honorary Secretary, Dr. N. Laidlaw; Honorary Treasurer, Dr. E. I. Fargie; Honorary Librarian, Dr. M. de Garis; Hospital Advisory Board representative, Dr. A. Morton; British Medical Association Subcommittee, Dr. R. Warden, Dr. M. W. Morris and Dr. H. R. Millikan; Library Subcommittee, Dr. J. P. Robinson, Dr. J. M. Agar and Dr. C. W. Gale.

N. F. LAIDLAW,
Honorary Secretary.

Reports of Sections.

Ear, Nose and Throat.—Office-bearers: Chairman, Dr. Walter Williams; Vice-Chairman, Dr. Denis O'Brien; Honorary Treasurer, Dr. Frank Shanasy; Honorary Secretary, Dr. Rory Willis. Hospital representatives: Saint Vincent's, Dr. Denis O'Brien; Royal Melbourne, Dr. Rory Willis; Alfred, Dr. Rex Blaubaum; Prince Henry's, Dr. Heyworth Watson; Victorian Eye and Ear, Dr. Roy Stevens; Children's, Dr. Clive Pyman.

The following activities took place during the year: November 27, 1951, clinical meeting at the Eye and Ear Hospital, with a film on "Bronchoscopy" lent by the Repatriation Commission; June 24, 1952, clinical meeting at the Eye and Ear Hospital; August 5, 1952, clinical meeting at the Eye and Ear Hospital, with film on "Allergy" lent by Wyeth, Inc.

RORY WILLIS,
Honorary Secretary.

Section for the Study of Allergic Diseases.—Office-bearers: Chairman, Dr. Charles Sutherland; Honorary Secretary and Treasurer, Dr. Alan Murray. The Executive Committee consisted of Dr. J. B. Alexander, Dr. R. H. O. Donald and the office-bearers. The total number of members was 15, and the average attendance at meetings 11.

Section meetings were held in September, November, March, May and August, and the subjects discussed included nasal polypi and their relation to allergic diseases, the preparation of protein extracts, and ACTH and cortisone in relation to allergic diseases.

During congress week in August three meetings were held at which allergists from Western Australia, South Australia and New South Wales were present, and a decision was made to form an Australian Society of Allergists.

The members of the section feel that they have concluded a very satisfying inaugural year.

ALAN MURRAY,
Honorary Secretary.

Ophthalmology (The Ophthalmological Society of Australia, Victorian Section).—Office-bearers: President, Dr. Esme Anderson; Honorary Secretary, Dr. J. McBride White. The number of members belonging to the section is 53.

During the year five meetings have been held, which were well attended.

The main item of interest that has had much discussion is the formation of an Institute of Ophthalmology. Plans have been made for its establishment, although tentative at present.

Workers' compensation fees have also been under discussion and negotiations with the underwriters are still in progress.

The necessity of sterilization of eye drops is being discussed with members of the Pharmacy Board of Victoria, but no finality has been reached.

J. MCBRIDE WHITE,
Honorary Secretary.

Physical Medicine (The Australian Association of Physical Medicine, British Medical Association).—Office-bearers, 1951-1952: President, Dr. Frank May (Melbourne); Vice-Presidents, Dr. P. J. Alpers (Adelaide), Dr. Leigh T. Wedlick (Melbourne); Secretary, Dr. C. M. Marshall (Melbourne); Treasurer, Dr. Leigh T. Wedlick.

The annual meeting of the Association was held on Monday, August 25, 1952, and was attended by some interstate members. The following office-bearers were elected for 1952-1953: President, Dr. J. A. Shanasy (Brisbane); Vice-Presidents, Dr. B. G. Wade (Sydney), Dr. P. J. Alpers (Adelaide); Secretary-Treasurer, Dr. Leigh T. Wedlick (Melbourne). Dr. Frank May delivered his presidential address entitled "The Changing Face of Physical Medicine". Dr. Wedlick presented a paper on "Newer Methods of Electrical Testing in Nerve Lesions (I-T Curves)", and gave a demonstration of electrophrenic respiration. This was followed by a discussion on the use of ultrasonic therapy opened by Dr. Gordon Rich (Christchurch, N.Z.).

F. MAY,
President.

Preventive Medicine.—Office-bearers: Chairman, Dr. H. McLorinan; Secretary, Dr. R. J. Farnbach; Committee Members, Dr. S. G. Anderson, Dr. P. Gilbert and Dr. S. Ormerod.

Meetings of the section have been held regularly throughout the year, commencing in the late afternoon on the second Thursday of each alternate month.

The following subjects have been under discussion: "Encephalitis", "Whooping-Cough and Immunization", "Diphtheria Prophylaxis", "Mental Hygiene in Relation to Public Health".

The meetings have been well attended, and the discussions were of considerable interest. Speakers from overseas have addressed two meetings, namely, Dr. William Reeves, of the University of California, who presented a paper on "Some Aspects of Encephalitis", and Dr. Jean Mackintosh, of Birmingham, who addressed a meeting on the subject of "Planning and Organization of Personal Health Services in a National Health Service".

R. J. FARNBACH, Honorary Secretary.

On behalf of the Branch Council,

CHARLES BYRNE, President.
H. G. HILLER, Honorary Secretary.
C. H. DICKSON, Medical Secretary.

Owing to the Eighth Session of the Australasian Medical Congress, the work of the Medical Secretary (Dr. C. H. Dickson) and the office staff was greatly increased this year, and Council expresses its warm appreciation of the manner in which these extra duties were cheerfully undertaken, both by Dr. Dickson and the general staff.

C. BYRNE,
President.

Addendum.

The following reports are published on behalf of:

The Melbourne Permanent Post-Graduate Committee.

Following the usual practice, courses during the year were conducted for higher degrees and diplomas, as well as the refresher course in obstetrics and gynæcology.

Country Courses.—Thirteen visits were made to country centres. The interest was maintained and the numbers attending were slightly higher than last year.

Clinical Post-Graduate Week.—The clinical post-graduate week was held towards the end of October, 1951. For the earlier part of the week a symosium on infectious diarrhœa was arranged in conjunction with the Physiology and Bacteriology Departments of the University and was held at the Royal Melbourne and Children's Hospitals. This was followed by a three-day course conducted by the Royal Melbourne Hospital.

Arrangements were made for Dr. Paul Wood, Dean of the Institute of Cardiology, London, to visit Melbourne following his post-graduate course at Auckland, New Zealand. Dr. Wood gave two lectures to the general body of the profession—"Ischæmic Heart Disease" and "Mechanism and Treatment of Heart Failure"—in addition to clinical demonstrations in the various teaching hospitals.

Dr. Wood's visit acted as a very great stimulus to the subject of cardiology in Melbourne and proved a memorable event in the committee's activities for the year.

No hospital clinical post-graduate week was held in 1952 on account of the fact that the British Medical Association Congress had been arranged to take place in Melbourne at the latter end of August. The committee was linked with Congress by the presence in Melbourne of Professor C. H. Best, and his visit to Melbourne was so arranged by the committee that he was able to play a very prominent part in the proceedings of the Congress.

Overseas Lecturers.—The overseas lecturer for this year under arrangements made by the Australian Post-Graduate Federation in Medicine was Professor C. H. Best, Director of the Banting and Best Research Laboratories of the University of Toronto, and co-discoverer of insulin with the late Sir Frederick Banting.

Professor Best spent approximately three weeks in visiting teaching hospitals, university departments and research institutes. Lectures given to the medical profession comprised "Insulin and Diabetes" and "Heparin and Thrombosis".

The committee had arranged that part of his time in Melbourne should coincide with the British Medical Association Congress at the end of August. Professor Best's participation in the Congress was of the utmost value. He made a number of contributions including an address on "Factors which Control the Fat Content of Liver Cells" to the Section of Medicine.

In addition, he took an active part in the discussion on "The Uses of Cortisone and ACTH" in the general session, and on "The Effects of Long-Continued Administration of Adrenaline upon the Carbohydrate Metabolism and Cardio-Vascular System of the Dog", following a paper on this subject given by Dr. D. M. Adams, of Sydney, in the Section of Pathology, Bacteriology, Biochemistry, Experimental Medicine and Forensic Medicine.

During this period the University of Melbourne conferred on him an honorary Doctorate of Laws, a tribute due to his preeminence in the world of science and of medicine, and one that he has already amply repaid to the University and the Melbourne Medical School by his stimulating influence and his wise counsel. The visit of himself and his charming wife, herself a university graduate in botany, will long be remembered as one of the most memorable of such overseas visits.

The committee participated in the visit of Dr. Avery Jones, who had come to Australia under arrangements made by the Nuffield Foundation.

Dr. Avery Jones, Physician-in-Charge of the Gastro-Enterological Department, Central Middlesex Hospital, and Consultant to the Post-Graduate Medical School of London, to St. Mary's Hospital and to the Royal Navy, is a world-wide figure in the field of gastro-enterology and is well known to numbers of Australian graduates to whom he has acted as teacher and guide over the past years.

His presence in Melbourne was eagerly availed of by teaching hospitals where his personal contact with the honorary staffs and resident medical officers and students was of greatest value. His contributions to the British Medical Association Congress were noteworthy, particularly that on "Management of the Complications of Peptic Ulcer" at the combined session of the Sections of Medicine, Surgery and Radiology.

He delivered one lecture for the committee on the subject of ulcerative colitis—a masterly and authoritative exposition of the subject which was enjoyed by a large audience.

At a meeting in April, 1952, arranged by the committee in conjunction with the Victorian Section, College of Radiologists, Dr. Norbert Klein, until recently radiologist at Green Lane Hospital to the Cardio-Surgical Unit, Auckland, showed two films on the subject of angiocardiography and contributed a most interesting commentary. The committee is greatly indebted to Dr. Klein for his generous action, and to the Auckland Medical Post-Graduate Committee for initiating the arrangements.

Summary of Activities.—The total number of those attending courses and availing themselves of the committee's facilities was 500 for nine months to the end of September, 1952. One hundred and twenty-five of these are post-graduates attending courses for higher degrees and diplomas.

In the first nine months of the year arrangements were made for twenty-five doctors to study overseas for higher degrees or undertake further post-graduate work.

Membership.—In September the committee received with deep regret the resignation of Sir Wilberforce Newton as chairman and also as representative of the Alfred Hospital.

Sir Wilberforce has rendered outstanding service to the committee for many years and, in particular, during the period since the inception of the Australian Post-Graduate Federation in Medicine. His strong leadership and wise outlook will be very greatly missed, and the committee will be much the poorer for his absence.

Dr. John Horan, the representative of Saint Vincent's Hospital for a number of years, has also recently resigned. His ready help and cooperation in many ways have been of great assistance to the committee, and his resignation was received with much regret.

New members appointed to the committee during the year included Dr. G. Raleigh Weigall, representing the British Medical Association (Victorian Branch) in place of the late Dr. B. Milne Sutherland, and Dr. Kevin Brennan, representing the State Health Department in place of Dr. George E. Cole.

The committee extends a warm welcome to both these new members.

Secretary.—For the greater part of the year under review, our secretary, Miss Nancy Davidson, B.A., has been overseas. During this period she has been in close touch with medical post-graduate organizations, particularly the British Post-Graduate Medical Federation, and the Edinburgh Post-Graduate Board for Medicine, a contact that should prove of great value in the promotion of our mutual interests in the future.

Miss Jean Persson, acting for Miss Davidson, has earned the deep gratitude of the committee for the ability and keenness with which she has carried out the duties entailed, and the readiness with which she has encountered the new problems constantly arising.

The British Medical Insurance Company of Victoria, Limited.

The following is the annual report, over the signature of the chairman, Sir John Newman-Morris, submitted to members of the company at the ordinary general meeting held on Monday, July 21, 1952:

The directors have pleasure in submitting for your approval the balance sheet, profit and loss account and appropriation account for the twelve months ended April 30, 1952.

The results of the year's operations (as disclosed in the profit and loss account) have not, in the opinion of the

directors, been materially affected by any items of an abnormal character.

The total premiums written for the year were £66,085, as compared with £45,422 last year.

Net profit for the year was £4099 11s. 5d., after providing £3500 for taxation.

The appropriation account shows that £685 was allocated during the year to various institutions connected with the medical profession.

Up to date the company has given books to the value of £2345 and £10,937 in cash to the Medical Society of Victoria, and more than £1150 to various subbranchs of the British Medical Association and other institutions connected with the medical profession. It has also taken up debentures of the Medical Society to the value of £3750, upon which it is accepting interest at the rate of only 1% *per annum*, which, of course, save the Medical Society a considerable sum in interest.

During the year a loan of £4000 was made to the Medical Society of Victoria to finance the purchase of an estate agency. This is in addition to the £3150 lent to them last year to finance a building purchase.

The directors feel that members of the British Medical Association will be interested to know of the benefits that they have received through the activities of this company, and feel sure that the knowledge will strengthen the already solid support given by the profession.

British Medical Agency, Victoria, Proprietary, Limited.

The British Medical Agency completed successfully its first year at the new Collins Street address. The move into the Collins Street offices originally occupied by H. L. Finlay Proprietary, Limited, has been of considerable assistance, not only to the agency, but also to its clientele. The activities of the two companies being so closely allied should prove of considerable importance in the future.

The sale of medical practices and houses is still restricted, mainly because of the high price of real estate involved, and this has resulted in many of the young doctors leaving their hospitals to look for assistantships and partnerships only. During the year several group practices were formed and this type of practice appears to be well established.

Directors of the agency were reappointed at the annual meeting as follows: Dr. C. H. Dickson (chairman), Dr. Douglas Thomas, Dr. G. S. Robinson, Major-General F. Kingsley Norris.

Presentation of Golf Trophies.

The President announced the winners of the golf trophies: Gerald Weigall Championship Cup, Dr. K. Summons; David Roseby Handicap Cup, Dr. A. R. Tate; spoon for best in-round, Dr. A. R. Tate; spoon for best out-round, Dr. J. Gardiner. He presented the trophies to Dr. Summons and Dr. Tate; Dr. J. Gardiner was not present.

Installation of the President for 1953.

Dr. Charles Byrne introduced the incoming President for 1953, Dr. L. H. Ball, and installed him in the presidential chair. Dr. Ball thanked the members for his election and said that he hoped that when he vacated the chair he would have earned the same respect and affection as had been enjoyed by Dr. Byrne.

Vote of Thanks.

A vote of thanks to Dr. K. Brennan, Dr. J. G. Hurley, Dr. A. E. Brown, Dr. A. H. Melville and Dr. W. Sloss, the retiring members of the Council, was carried on the motion of Sir John Newman-Morris.

SCIENTIFIC.

Corrigendum.

An error appears in the account of patients presented by Dr. S. L. Spencer at a meeting of the New South Wales Branch of the British Medical Association at Sydney Hospital, which was published in the issue of January 24, 1953. On page 119, first column, in the ninth, tenth and eleventh lines of the third paragraph, the two sentences beginning "It was interesting . . ." should read: "It was interesting to note that recent communications by State of Minneapolis advised a somewhat different resection. State recommended . . ." We regret this error.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

SANITARY REFORM.[1]

[*Magazine of Science and Art*, Volume I, 1858.[2]]

I will endeavour to give you some notion of the condition of a few of those places which have come under my notice in the performance of my duties as one of the surgeons in the dispensary. (My district comprises Bourke and Macquarie wards.)

Behind Boody's Glasgow Beef house in George Street is a court containing 5 or 6 houses built on its northern side and with a high dead wall opposite to them: the court has but one opening and that not a direct one from George St., is much below the level of the street, is undrained and unpaved and therefore always damp: The houses have no back yards and are therefore very badly ventilated and the ground floors of all but one are considerably below the level of the court. There are only, I believe, two rooms in each, one over the other communicating by an open ladder. The aspect of the place is miserable in the extreme. The houses are of weatherboard, very old and much dilapidated and are let for from 10 shillings to 15 shillings per week.

A little farther south in Queens Place a narrow street between George and Pitt Streets on the right hand of which are some small houses having the lower floor much below the level of the street. On the left is a small court of six or eight houses which is paved but badly drained and always dirty. Behind there is a narrow dirty path, bounded on one side by a bank above four feet high, comprising the back premises of one side of the said court, unfenced, and displaying in disgusting prominence and proximity to the passerby a dilapidated common privy and on the other by the foundation of some unfinished buildings, the excavation for which serves as a reservoir for rain and drainage water, duly seasoned with dead cats, rats and vegetable and animal refuse of all kinds. At the extremity of the path you emerge into a court consisting of 18 or 19 houses, of two rooms each, let for ten shillings per week, except one in the corner which having only one apartment the landlord considerately lets for 7 shillings only. The houses on one side have one room over the other communicating as usual by an open ladder: those on the other have both rooms on the ground floor and are all but one below the level of the court which is unpaved. Down the centre is a channel, but so badly constructed as to be a mere succession of holes full of dirty stinking fluid, opening into the Tank stream by a small aperture in the enclosing wall. After heavy rains the houses nearest to this part are usually flooded, and they will now be worse off than before as on every such occurrence their own refuse water will be thrown back on them. To this court occupied by an average of 100 souls there is only one privy which also drains into the Tank: the latter once alas a woodland rivulet flowing in pristine purity from the native forest, and at the very mouth of which England's first cargo of moral pollution was discharged, but now a foul sluggish streamlet, straggling along its devious course amidst a collection of articles which would make a London or Parisian chiffonier's fortune, interspersed abundantly with the carcases of dead dogs, cats, rats and fowls, cabbage stalks etc. to finally lose itself in an abominable delta of black disgusting slime. In the very bed of the Tank stream, immediately below the unfinished buildings in Bridge Street, stands a miserable hovel occupied by an old couple: the man a victim to chronic rheumatism and bronchitis and the wife endeavouring to eke out the charity of some benevolent individuals by taking in a little washing.

In Castlereagh Street near Park Street I have recently had to attend a young woman suffering from constant bilious vomiting. For this I can find nothing to account but the state of the premises. The house placed a little distance back from the street is of four low small rooms, weather boarded, very old and dilapidated. From the front court there is a descent into the house, and a still deeper one from the back and in immediate contact with the back wall is the privy. The floor is rotted in many parts and I

[1] From the original in the Mitchell Library, Sydney.

[2] From "Sanitary Reform", by Isaac Aaron, Esq., a paper read on September 10, 1856, to the Philosophical Society of New South Wales.

thrust my stick several inches into the black soft earth, saturated with the fæcal infiltration. The yard, which is common to several houses, is unpaved and unlevelled and has a ditch of uncertain depth winding diagonally across it, filled with the most Stygian looking "hell broth, thick and slab", distilling into the air its sulphuretted hydrogen which breaks in bubbles on its surface. For this pest house which looks as though a shilling had not been expended on it these twenty years, the woman told me she paid twenty shillings a week, the owner at this very time disbursing a considerable sum in putting into thorough repair and beautifying a public house close by also belonging to him.

Post-Graduate Work.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

PROGRAMME FOR MARCH.

Classes for Higher Degrees and Diplomas.

Pathology.

COMMENCING on March 2, at 1.45 p.m., classes in pathology suitable for candidates for M.D., Part I, and Part II of the diplomas, M.S., Part II, and final F.R.A.C.S., will be held in the pathology department, University of Melbourne, continuing on Mondays and Wednesdays till July.

Physiology.

Commencing on March 2, at 3.45 p.m., classes in physiology suitable for candidates for M.D., Part I, M.S., D.O., D.L.O., D.G.O., D.D.R., D.P.M., D.A., and primary F.R.A.C.S. and F.R.C.S., will be held in the university physiology department, continuing on Mondays and Wednesdays till July.

Physics.

Commencing on March 5, at 4 p.m., classes in physics suitable for candidates for D.D.R. and D.T.R. will be held in the X-ray and radium laboratory, continuing on Thursdays until July.

Enrolments for the above courses should be made by February 25.

Anatomy.

Anatomy classes suitable for candidates for M.S., Part I, D.G.O., D.A., D.O., D.P.M., D.L.O., D.D.R., D.T.R. and primary F.R.A.C.S. and F.R.C.S., which commenced in February, will be continued on Monday and Wednesday afternoons, at 2 p.m.

Course in Higher Surgery for Final F.R.A.C.S.

From March 16 to May 1, clinical demonstrations in surgery will be held at the Royal Melbourne, Alfred, St. Vincent's and Prince Henry's Hospitals from 3 to 5 p.m. on Mondays, Tuesdays, Wednesdays and Fridays. The demonstrations will be conducted by Dr. G. Grove, Dr. I. Heinz, Dr. G. Brosnan and Dr. R. Webb, under the supervision of Dr. Stanley F. Reid. Provision will be made for entrants to attend out-patient clinics in the various hospitals. Enrolments should be made with the Melbourne Permanent Post-Graduate Committee by March 2. The fee is £21.

Courses Suitable for M.D., Part II, and M.R.A.C.P.

Arrangements are in progress for a course in neurology to be conducted by Dr. Macdonald Critchley, Dean of the Institute of Neurology, London, at the Alfred, Royal Melbourne and St. Vincent's Hospitals during the three weeks between March 8 and 28. It will consist of five ward rounds followed by lectures. The fee for this course is £3 3s. Enrolments should be received by the committee by March 6.

Provided there are sufficient enrolments, a course in pædiatrics will be conducted at the Children's Hospital under the direction of Dr. M. L. Powell at 2 p.m. on March 24, 27 and 31 and April 10, 14 and 17. The fee is £3 3s. Entries will close on March 13.

Course in Radiodiagnosis.

The Post-Graduate Committee would like to commence in April a course in radiodiagnosis for candidates for the D.D.R., Part II, if it seems that there will be a sufficiently

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JANUARY 31, 1953.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.[2]	Australian Capital Territory.	Australia.[3]
Acute Rheumatism	6(6)	2(1)	..	..	..	..	..	..	8
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	..	..	..	..	..	..	..
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	1	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	1(1)	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	8(4)	3(2)	7(7)	..	1	1	..	..	20
Diphtheria	13(5)	1	1[b]	..	7(5)	1	..	..	23
Dysentery (Bacillary)	..	1(1)	..	..	1(1)	..	..	..	2
Encephalitis	2	..	..	..	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	1	..	..	..	..	..	..	1
Infective Hepatitis	..	9(4)	..	..	10(8)	..	..	..	19
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	1	..	..	..	..	..	1
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	4(1)	..	..	..	1(1)	..	..	5
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	1	..	..	..	..	..	..	1
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	12(7)	7(2)	16(2)	8(5)	1	12(5)	..	..	56
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	34(13)	..	..	1(1)	..	..	1	36
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	7(2)	19(8)	5(4)	1(1)	6(5)	1(1)	..	..	39
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	23(21)	9(6)	37(8)	17(14)	6(5)	2	..	1	95
Typhoid Fever	..	..	1	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	5	..	1	..	..	..	
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] Figures not available.

[3] Figures incomplete owing to absence of returns from Northern Territory.

large class. Those desirous of attending such a course are asked to contact the committee as soon as possible.

Country Courses.

Flinders Naval Depot.

On March 11, at 2.30 p.m., Dr. G. Brosnan will lecture on "Surgery of the Hand" at Flinders Naval Depot, by arrangement with the Royal Australian Navy.

Mooroopna.

A week-end course will be held at Mooroopna on March 14 and 15. The programme will be as follows:

Saturday.—2.30 p.m., at Mooroopna Base Hospital: Dr. J. M. Buchanan, "Prolapse: With Special Reference to Stress Incontinence". 8 p.m., at The Grosvenor, Shepparton: Dr. T. H. Steel, "Common Chest Conditions".

Sunday.—10.15 a.m., at Mooroopna Base Hospital: Dr. R. Southby, "Failure to Thrive"; 11.30 a.m., Dr. J. Woodward, "The Painful Neck and Shoulder".

The fee for this course is £2 2s., or 10s. 6d. Enrolments should be made with the Secretary of the Subdivision, Dr. B. R. Schloeffel, Maud Street, Shepparton. Those who have paid an annual subscription to the committee may attend without further charge.

Overseas Lecturers.

Dr. Macdonald Critchley, who will visit Melbourne between March 8 and 28, will give four evening lectures to the general body of the medical profession and conduct a series of five ward rounds followed by lectures at the Alfred, Royal Melbourne and St. Vincent's Hospitals. It is also hoped that he will speak at a one-day meeting of the Australian Association of Neurologists. The fees payable for attendance at these lectures will be announced later. Those who have paid an annual subscription to the committee may attend the four evening lectures without further charge.

Dr. R. D. Lawrence, physician-in-charge of the Diabetic Department, King's College Hospital, London, will lecture on Thursday, March 26, at 8.15 p.m., on "Diabetes in General Practice". The fee for attendance at this lecture is 10s. 6d. Those who have paid an annual subscription to the committee may attend without further charge.

Enrolments.

Enrolments for the above lectures and courses should be made with the Secretary, Melbourne Permanent Post-Graduate Committee, 394 Albert Street, East Melbourne. Telephone: FB 2547 or FB 2548.

Notice.

AUSTRALIAN RED CROSS SOCIETY SCIENTIFIC MEETING.

IN conjunction with the next meeting of the National Blood Transfusion Committee, a scientific meeting has been arranged for 8.15 p.m. on Thursday, March 12, 1953, at the lecture theatre, Pathology Department, Women's Hospital Melbourne. The programme will include the following papers: "Accidental Hæmorrhage", Dr. E. B. Drevermann (Melbourne); "Some Observations on Immunization by the A B O Blood Factors", Dr. R. Jakobowicz and Dr. E. K. Turner (Melbourne); "Blood Groups and Twinning", Dr. Norma McArthur (National University, Canberra). The National Council of the Australian Red Cross Society invite all members of the medical profession to attend the meeting and take part in the discussion following the papers.

BEATTIE-SMITH MEMORIAL LECTURES.

THE nineteenth Beattie-Smith Memorial Lectures on Insanity will be delivered by Dr. R. Stewart Kennedy in the Anatomy Theatre, University of Melbourne, at 8.15 p.m., on May 11 and 18, 1953. The titles of the lectures will be "Psychiatry in Relation to the Family". Both lectures are open to all members of the medical profession.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Raymond, Arthur Wilmot, junior, M.B., B.S., 1952 (Univ. Sydney), 48 Anson Street, Orange, New South Wales.

Diary for the Month.

MARCH 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
MARCH 13.—Queensland Branch, B.M.A.: Council Meeting.
MARCH 16.—Victorian Branch, B.M.A.: Finance Subcommittee.
MARCH 17.—New South Wales Branch, B.M.A.: Ethics Committee.
MARCH 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
MARCH 18.—Western Australian Branch, B.M.A.: General Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital: all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

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All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

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